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Ad Manager: Paul Kavanagh

Ad Copy Control: Andrew Selwood

Origination: Project 3

Designer: Kim Goodhew

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This month's cover is by Paul Grunbaum of Brussels, Belgium.

**ARGUS
PRESS
GROUP**

Welcome

■ The world of Commodore Amiga certainly is

moving quickly, so quickly in fact that this will be the last bi-monthly issue of *Your Amiga*. The June cover-dated issue (out in May) will see the magazine enter a new era of its life as a monthly publication allowing us to keep you even better informed about what's new.

The Commodore Amiga is proving so popular that the Beeb will be basing a new series on the computer. According to the information that we have received, the programme's producers have looked at the computer market and plumped for the Amiga as it is the best selling home computer that meets the requirements for the new show. It appears that the programme will be looking at using a computer in the home for things other than just playing games. There's even a possibility that the Amiga will be used to produce the titles and credits for the programme — what better proof do you need to show that the Amiga is the machine of the moment? We'll keep you informed about progress with the programme as soon as we can find out more.

Apologies to all of you who have tried to find the review of *Professional Page* in this issue. This article was to have been the first article produced totally on an Amiga from writing to film making. Unfortunately a few last minute technical hiccups have prevented us from producing the article. Don't worry — next issue we'll give you a full review of the program together with details on all of the problems that we have had to overcome before we could use the program to produce real magazine pages.

Having mentioned *Professional Page*, a DTP program for the Amiga, this seems to be a good time to tell you that your Amiga will soon be able to take on a totally new identity as an Apple Macintosh. Ready Soft has already previewed a Macintosh emulator in Canada. The unit, which comprises a new disk drive and associated hardware, is still under development but we hope to be able to give you more info and maybe some pics in the next issue of the magazine. The emulator will allow you to run almost all Macintosh software on your Commodore Amiga — neat huh!

So there you have it, the Amiga is really starting to be noticed by the Software houses. Nineteen programs are in the top 30 charts of a major software supplier (the other 11 were Atari ST); appearances are due on TV and *Your Amiga* is going monthly. What more could an Amiga owner want?

Stuart Cooke

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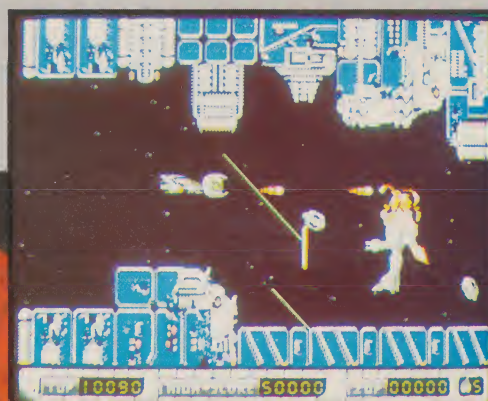
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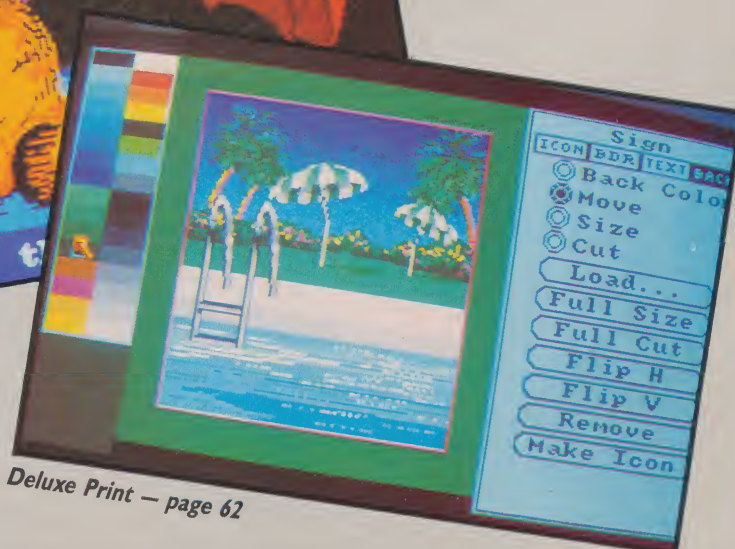
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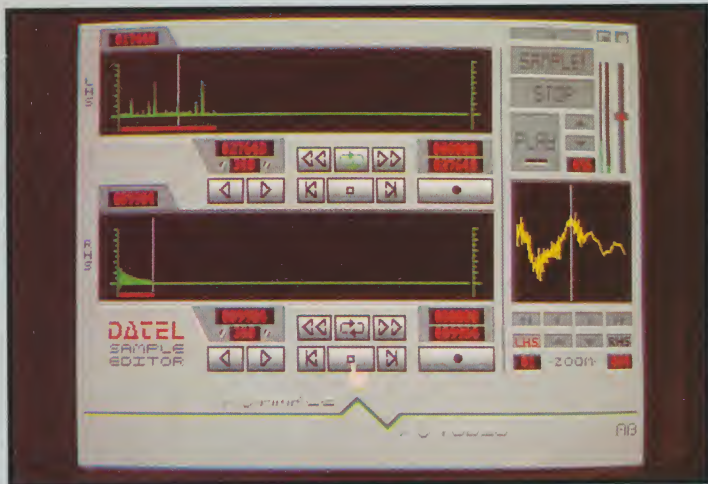


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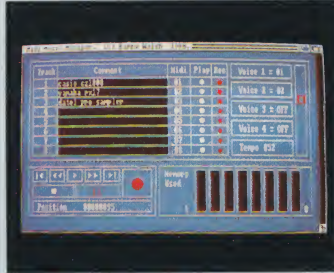
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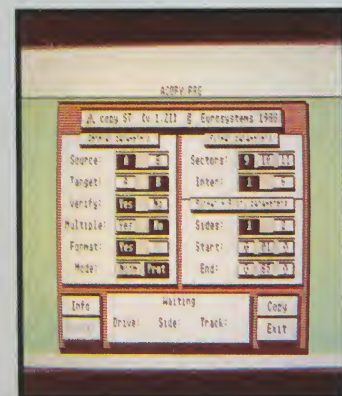
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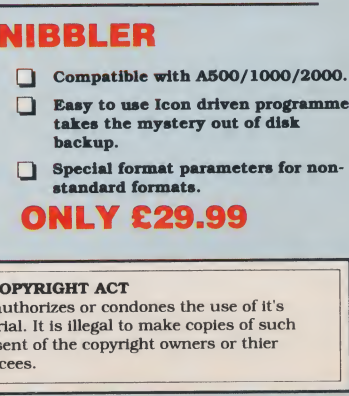
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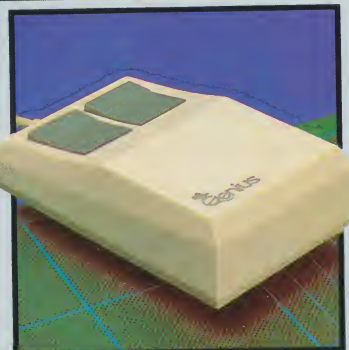
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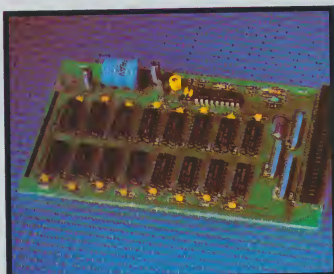
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Amiga Update

Word To The Wise

WordPerfect is going for the education market by offering increased discounts to schools, colleges, polytechnics and universities for both training and administrative applications.

The offer can mean substantial savings for qualifying establishments by offering an education site licensing scheme. This means that only one full

WordPerfect pack needs to be acquired for £110 and packs of extra templates and quick reference guides can also be supplied for each work station at a price set according to the number purchased. Under the license, purchasers can then produce a copy of the master disks for each workstation and thereby cut the total cost to about 10% of the price of several complete **WordPerfect** packs.

Dotting Around

For many Amiga owners desk space is at a premium and finding room for a printer can be a problem. Toshiba's new ExpressWriter 301 has the dual advantage of being small and battery or mains operated while still allowing letter quality printing.

The 24-pin thermal printing head works with a special resistive ribbon or without a ribbon at all if thermal paper is used. Toshiba claims that this gives equivalent quality to the other 24-pin printers in its range.

Despite being designed for the busy executive on the move, in the home the printers rechargeable batteries means that it can be hooked up for a quick printout without the need to grovel under the desk for a spare mains outlet.

Basic Program

GFA Basic has been terrifically successful on the Atari ST according to its manufacturer's claim of over 70,000 sales in two years. Now it has been translated and improved for use on the Amiga and is available from Microdeal for £64.95.

GFA is structured in a similar way as AmigaBasic, employing labels and procedures, and should provide an interesting alternative.

Budget Stereo

Trilogic have the answer for those who want stereophonic sound but only possess the standard mono monitor. Miniamp2 is a twin speaker unit with a separate volume control that can be placed close to hand. The advantage that this has over a stereo monitor is that the speakers can be placed in the optimum position to give a true stereophonic feel to the computers output.

The units take their power

from the serial port and the price for upgrading your Amiga is £19.99.

Trilogic seems to be specialising in low cost add-ons because the Miniamp joins the £37.99 **Stereo Digitiser** which is designed to work with **Audiomaster**, **Perfect Sound** and **Prosound**. If Eidersoft's **Prosound** is bought with the digitiser the purchaser can also save £4.95 on the software package's normal retail price of £34.95.



Panasonic's wide-mouthed KX-PI180 printer

Panasonic Printer

Panasonic's **KX-PI180** printer is a low cost, 9-pin machine which accepts any paper up to A3 size and several paper feed options.

Tractor feeding can be either push or pull with the paper feeding in from the rear or from underneath. The paper

drive can also handle envelopes or four part multiple sheet stationery.

The print speed is 38 cps in NLQ and 192 cps draft and the touch panel allows the user to select print styles without having to resort to software codes or inaccessible DIP switches. The KX-PI180 retails for £269.

Computer Care

Harrow based firm, Burocare Graphics Design, have devised a novel way of providing a support package for the Amiga. Support unit blocks can be bought from the company and then exchanged at a later date for training, consultations and servicing.

An Amiga-Care subscriber can buy support units in blocks of 20 for £100 per block but this reduces to £85 if 50 blocks or more are purchased. Units may then be exchanged for services ranging from one block for a telephone consultation to 10 blocks per hour for on-site repair work for 80 blocks per day for consultancy.

The services provided cover insurance for accidental damage or loss of data, maintenance, technical reports and software updates, consultancy or system analysis as well as the telephone helpline. The company also issues a monthly statement so that the Amiga-Care account can be topped up when necessary.

Further details can be obtained from Burocare Graphics Design, 211 Kenton Road, Harrow, Middlesex HA3 0HD. Their phone number is 01-907 3636.

Twice the fun with Miniamp2 from Trilogic



Deity Stories

Electronic Arts' UK

programming team, Bullfrog, have produced a game which takes the old Life concept and boots it into another dimension. *Populous* enacts the birth of two nations — one good, the other evil. Both nations are fanatical followers of their own god and willing to fight for their beliefs. The players take the role of one of the gods and try to influence the lives of the mortals to make them fruitful and creators of bigger and better technologies.

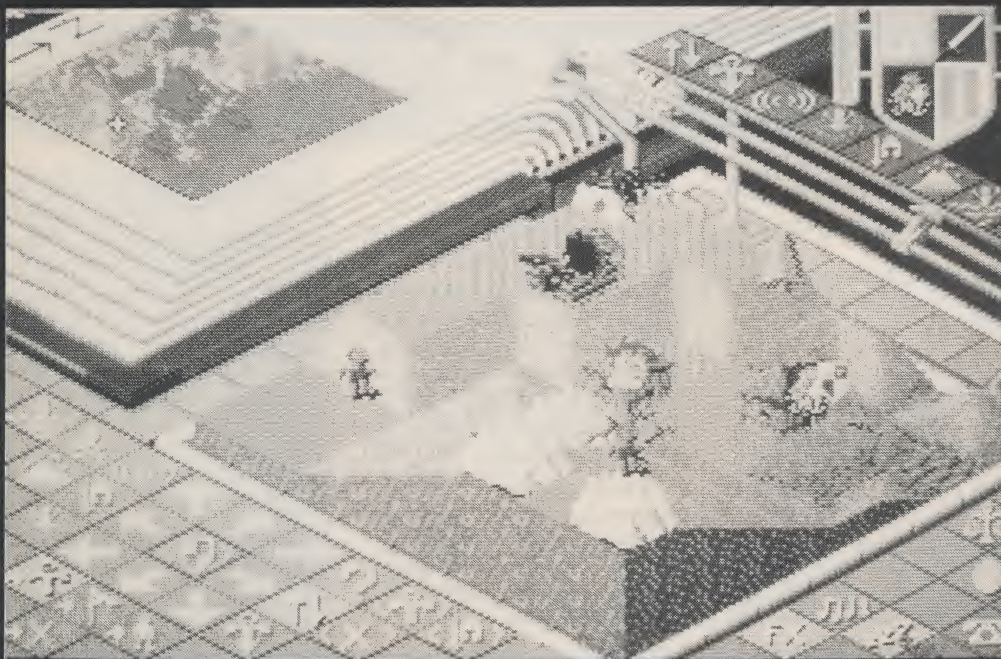
The idea of the game is to

maintain the advantage until the opponent's nation has been totally wiped out. The action takes place on a world map and a god can zoom in on any part of the world to watch and influence the mortals in glorious 3D. Though the game can be played on a single Amiga, there is provision for the opponents to be modem linked together so that an Amiga owner can play against a lesser god who can only afford an Atari ST.

A player has access to an average god's toolkit so that lands can be ravaged by pestilence and catastrophe at will. The lives of the mortals can be changed through the

medium of a leader who is empowered to create knights to burn and pillage. The only creatures beyond a deity's control are sea monsters and giant birds who randomly rain death and destruction on either nation at will.

Lazy gods can gradually progress from level to level through several worlds with varying climates but more imaginative almighty ones may go on to create their own worlds either for practice or malice. To accept the role of god all you need is a holy disposition, a sense of outrage, a desire for vengeance and £24.95.



EA's *Populous* promises great sound and god graphics.

Amigames

New releases for game

players include offerings from Psygnosis, Activision, Outlaw, Novagen and Microdeal.

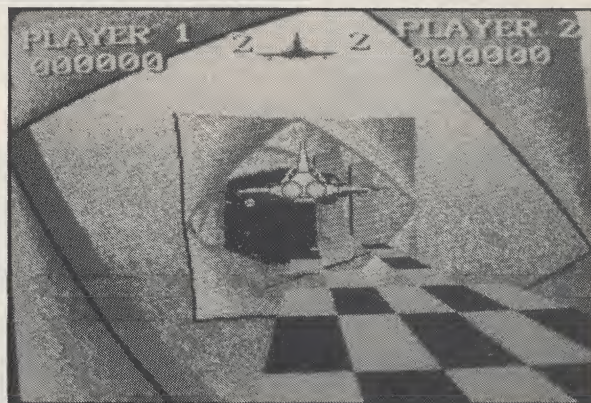
Ballistix from Psygnosis is a ball game and the winner is the player who scores most goals. Boring? Well not quite because the bizarre gameplay options will keep the player on the ball at all times. There are hovers to suck you in, blowers to spit you out, splitters to turn one ball into a multitude and bumpers which bounce you way off target. According to the blurb there are also magnets which whip the balls from under your nose — funny place to keep them! (£19.95)

Activision's *Neuromancer* is ready for release and has already received acclaim on

other formats. It has everything going for it — programmed by Interplay, the *Bard's Tale* people, based on an award winning sci-fi novel by William Gibson, with music by the weird late 70's band DEVO. (£24.95)

The life of a space bandit can be experienced in Outlaw's *Cosmic Pirate*. Working for a Mafia-like group called The Council, the pirates can be sent on missions around the galaxy to smash open metal container ships and share the plunder which can be sold to buy optional extras for the pirate ship. Hmmm! A group who work for the council and plunder metal containers? Sounds like my local binmen. (£19.99)

Hellbent is a good, old, starfleet shoot-em-up from



Microdeal's *SlipStream* runs deep

Novagen but true to the Amiga's superior facilities it has a host of play options to give it a lasting appeal. (£19.95)

Microdeal's *SlipStream* consists of nine streams which have been overtaken by some nasty aliens. The system is now patrolled by their defence crafts which obtain power from a

New Dealer

Commodore has appointed Microdealer International as its new distributor of the full range of computers and peripherals in the UK. This replaces Commodore's longtime agreement with Hugh Symons and takes Microdealer into the realms of hardware distribution as well as its established position as a top software distributor.

Microdealer have occasionally carried hardware products but often these have been shorter term contracts such as its agreement with the Sega console over the Christmas period. The reason for Commodore's choice lies in the nature of Microdealer's established software distribution network. Many of the companies which Microdealer supplies are seen as potential stockists of hardware, in this way Commodore can establish contact with a wider dealer network to help establish the Amiga and its stablemates in the marketplace.

Font Memories

Qume has released font cartridges for CrystalPrint WP and Series II printers.

For the WP, the on-board Courier 10 font can be complemented with Courier Italic, Letter Gothic, Letter Gothic Italic, Helvetica, Times Roman and Large Elite at £49 per cartridge. Cartridges for the Series II cost £90 and add Courier, International, Times Roman Proportional or Legal Courier to the six resident fonts.

crystal at the far end of each stream. The mission is to battle through each 3D stream and destroy all of the crystals before the aliens destroy your ship. This game features a full screen scroll which takes you deeper and deeper into the screen of the computer. (£19.95)

New software

The Workbench 1.3 is a disk-based update to the operating system, and many improvements and new features are now claimed. I can guarantee the fonts are available but I did not get round to trying some of the other features.

With the new **FAST FILE SYSTEM** hard disk reads and writes are up to seven times faster, directories are up to ten times faster and the Disk Partition Limit is raised to 2 Gigabytes.

The new **RECOVERABLE**

RAM DISK keeps its contents until the Amiga is turned off. The **COPY** command has been enhanced for use with Ram Disks.

The text printing to the screen is up to four times faster, and the Times Roman, Helvetica, and Courier fonts are now standard. Notepad handles more fonts and the **DISKFONT.LIBRARY** has been improved. There is a command **SETFONT** to set the default font.

It is possible to **COPY** to and from **AUX:** when you need a non-buffered serial device, and **COPY** to **SPEAK:** for speech output.

The graphic printing software on the printer driver has been improved so that graphic printing is up to six times faster, and the colours can be corrected so that the printed page looks like the screen. The Amiga can **ANTI-ALIAS** graphic prints to make smooth, clean looking characters. Preferences allows the user to set more printer options, and **CMD** redirects printer commands to a file.

Use of the **MATHS LIBRARY** is about six times faster, and Computer Aided Design programs using the library speed up automatically. The library automatically uses a 68881

Math Coprocessor chip if it is available. (The 68881 and 68882 chips have extra floating point data registers, they can manipulate floating point numbers and transfer them to and from decimal strings. These commands can take place at the same time as other commands to speed the calculations even more.)

MORE easily allows the user to look at files and the **EMACS** editor has many new options. The **PIPE** command supports Unix style named pipes. **XICON** executes **SCRIPT** files from Workbench and **SEARCH** can now be used for scripts.

AMIGA FEVER!

■ **Commodore felt that it** was appropriate to hold the conference at Frankfurt, as it was also the venue for the initial European launch of the Amiga. The year 1988 was a year of expansion and maturation for the Commodore Amiga, the European development community got together to exchange knowledge and ideas in the hope of continuing this success into 1989.

One of the conference aims was to provide new and advanced information on the new hardware available to the Amiga. There were one or two new items in addition to the products announced at the Washington Developers' Conference last summer.

Programming practices

It is inadvisable for a program to jump directly to ROM code, calling a routine with an address in the \$F80000 to \$FFFFFF range, as these ROM routines may move. The only supported interface to ROM code is through the library, device and resource calls. For Assembler programmers this means that functions must be entered through the library base jump tables, with arguments passed as long words and the library base address in A6. Any results returned in D0 must be tested, and any data in D0, D1, A0 and A1 may have been overwritten during a system call. Assembler programmers should also avoid

privileged instructions, software based timing loops, and using the stack for code or system structures.

Some private structures like copper lists, memory lists and library bases may change and structure members may be in a different place. We can no longer depend on the format of these private system structures.

We can no longer rely on addresses of system structures and free memory. When the system modules dynamically allocate their memory space on initialisation these addresses vary with the model and operating system. Hardware programmers should follow hardware interfacing specifications to make sure of compatibility with future systems.

Information

The conference featured seminars on graphics, sound, IFF files, ports, handlers and file systems by the team who wrote the system library routines. There was advice on C programming, Assembler, device and library creation and upward compatibility with opportunities to ask questions. A seminar was given on the existing Motorola chips, with predictions for the future.

Developers were advised on writing software that would work with Kickstart 1.3 and future versions of Kickstart. Apparently there have been reports that some commercial Amiga programs do not run on some versions of the current machines and operating systems. We were given some useful advice on programming practices which I can pass on to Your Amiga readers.

New hardware

The enhanced chip sets announced at the Washington Developers Conference are now at the Beta testing stage. These chips will be supplied as an upgrade for Amiga 500s and two layer board Amiga 2000s. In addition to current video modes, colour and resolutions there will be a non-interlaced four-colour mode 640x400 NTSC (640x512 PAL). These chips are intended for use with an Amiga High Resolution Monochrome Monitor A2024 and version 1.4 system

software.

The Auto Boot Adaptor Card A2090B was announced. This card contains two EPROMS and will Autoboot an otherwise non-autobooting A209 hard disk controller card under Version 1.3 Kickstart. It is claimed that no modifications are necessary to the A2090 card, and that this autoboot adaptor card can be plugged into any adjacent slot.

There is to be a Multiple Serial Port Card for the A2000, the A2232. The board contains seven RS232 ports on a single card, each with individually controlled baud rates up to

19.2K. An on-board 6502 off-loads the 68000 and is programmable from the 68000. Software support for AmigaDOS as well as UNIX is to be provided.

For A500s with delusions of grandeur there is to be the A590; a Hard Drive plus RAM Expansion for the A5000. The unit contains a 20MB hard disk drive, and it attaches to the 86 pin expansion connector of the A500. Sockets for up to 2MB of RAM are available internally. The system should autoboot when standard version 1.3 software is preloaded on the drive.

Community spirit

One of the aims of the conference was to foster a spirit of camaraderie and co-operation in the European Amiga Community. As the host country with the most Amigas, Germany was best represented, but there were many other Europeans and they all spoke excellent English. There were programmers, journalists, developers, and distributors all brought together by *Amiga fever* and their enthusiasm for the Amiga and its products. *YA*



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Hell fire

Kevin Crosby gets out his chopper and takes to the skies in the latest offering from Martech

■ To do well in the games market you can do one of three things:

■ You can invest in expensive licenses from TV shows, films and coin-ops like Ocean, Domark and Activision do.

■ You can come up with original game ideas of your own such as Exxos, Telecomsoft,

Electronic Arts, and so forth

■ You can disregard the above and try to predict what the big hits are going to be and come up with something that "fits into the same niche market" or in other words copies the bestseller idea-wise while keeping the graphics just different enough to keep them out of the courts (and *Computer Trade Weekly*).

Martech appear to have opted for option three with *Hellfire*. The game is an airborne shoot 'em up in which you pilot a helicopter gunship over everything from forests to polar ice caps, blasting the merry hell out of land and air based targets.

Flying in the top half of the screen fires your air-to-air missiles, flying in the bottom half deploys the air-to-ground armaments. In fact to cut a short story even shorter, what you've got is *Afterburner* with rotor blades. If this is your kind of game then my advice is to go for the original.

YA

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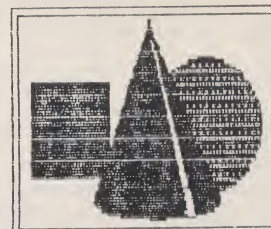
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GFA-BASIC 3.0

German Alternative

German A

Allen Webb investigates a new German alternative to Amiga BASIC

■ The AmigaBASIC bundled with the machine is quite respectable but it does have some shortcomings. It is therefore not surprising that alternatives have been developed. GFA-BASIC originates from that Amiga hotbed, West Germany, and is an interpreted language (although the documentation mentions a compiler). Since most of us will know something about the Basic language, I don't intend to cover the obvious details, instead I will try to indicate the aspects which separate GFA-BASIC from the rest.

The package consists of a single disk and a manual in a ring file. The disk contains an editor and a run alone module. The latter boots the system library for running completed programs. Some demo programs are also include. Two rather similar graphics demos, a program for converting IFF pictures into blitter objects (bobs) and an ill explained program for converting library files. The manual itself is quite meaty although the English is occasionally odd — probably due to its Germanic origins. Its content is a little mixed. In many cases the commands are well described with useful examples. In other areas the text is obscure. The section on library routines is particularly poor.

First things first

The first thing you notice when you boot the program up is that you enter a purpose written editor. Unlike that with AmigaBASIC, the editor offers a decent programming environment for you to work in. The screen shows a double row of boxes at the top of the screen. These provide the main options and can be accessed using the mouse or by key presses. The editor uses overscan to maximise the amount of the program shown. If you can stand the flicker, interlace mode is available to show even more of your program. The usual block options are available to allow cutting, copying and pasting. Whilst it works well enough, I prefer the AmigaBASIC approach. You can also perform a range of editing functions using the CTRL key along with other keys. Lastly there is a FIND and a FIND/REPLACE option.

One irritating aspect of writing in any program is the time wasted by finding syntax and programming errors. Four handy little features of the editor make life easier. First, an automatic indent facility is provided. Each



time a LOOP is started, a new level of indent is provided. This is reduced each time a NEXT or other terminator is met. By matching the indent position it is therefore possible to check whether your loops match. This can also be verified using a test option which looks for unclosed loops. Each line is automatically checked for accuracy of syntax and finally it is possible to compress procedures to a single title line. This simplifies the appearance of a programming thereby aiding checking. As a final tweak, your input text is adjusted so that keywords are in upper case and unnecessary spaces are removed.

The general feel of the language is rather similar to AmigaBASIC with similar use of labels, variables and looping structures. The main noticeable addition is a SELECT CASE instruction. Consider this example:

```
INPUT z
SELECT z
CASE 1
PRINT "one"
CASE 2
PRINT "two"
CASE 3
PRINT "three"
DEFAULT
PRINT "greater than 3"
ENDSELECT
```

Depending on the value of z, an appropriate message is written. The DEFAULT

phrase prints the default value if none of the CASE statements are used. Easy eh?

In addition to the CASE structure, GFA-BASIC has a formidable array of loop structures. Consider this little lot:

```
IF...THEN.....ELSE
ELSEIF
ON GOSUB
FOR....TO....DOWNT0
REPEAT...UNTIL
WHILE...WEND
DO LOOP
DO WHILE
DO UNTIL
LOOP WHILE
LOOP UNTIL
EXIT IF
GOSUB/PROCEDURE
@FUNC/FUNCTION
DEFFN
EVERY- /AFTER
```

Some of these appear in AmigaBASIC, some are positively bizarre. DOWNT0, for example, is a replacement for STEP -1. Since this is its only function, I don't know why the programmer bothered to invent it! Whilst I applaud the wide range of options, I can't help but feel that it tends to confuse rather than help. This feeling is increased when you realise that DO WHILE...LOOP is the same as WHILE...WEND and DO....LOOP UNTIL is the same as REPEAT...UNTIL. FUNCTION and DEFFN effectively do the same job

an Alternative

although DEFFN is for single line. EVERY and AFTER use the clock to decide whether an action is to be taken. EVERY repeats the action each time the specified time period has elapsed, AFTER ensures that the action is taken once after the specified time. EXIT IF allows you to leave a loop structure if a boolean function is satisfied.

Arrays

In many applications you want to manipulate data in arrays. Again, a variety of commands are available to help. There are two sorts available, a bubble sort and a quick sort. I'm not certain why there are two and the manual doesn't really let on. These commands allow you to sort the array in either ascending and descending order. You can also add or remove data to an array using INSERT or DELETE. These commands reshuffle the array once the operation has been carried out.

The authors of GFA-BASIC have pinched quite a lot of features from other languages. From assembler they've taken commands for handling specific bits in data. These include BCLR, BSET, BCHG and BTST which allow the setting, clearing, flipping and testing bits, and SHL, SHR, ROL, and ROR for shifting and rolling bytes. For fast incrementing or decrementing variables by one, you can use INC or DEC. There is also a full range of boolean functions. A number of commands have been taken from C. Double equate (==) is used to check for equality, * is used to represent the address of a variable or an array (same as VARPTR which is also included). VOID is provided to allow you to ignore the result returned by a function.

Overwhelming

The most overwhelming impression was the comprehensive nature of the language. The authors appear to have included as many commands as possible including a few pinched from C. Indeed, there is even a command to allow you to interface with chunks of code written in C. The Amiga is a powerful beast with a wide range of graphics capabilities. One of the frustrating features of AmigaBASIC is that it ignores many of them. GFA-BASIC almost goes to the other extreme in that it bristles with options. Let us consider a few examples.

The command for opening a screen supports all available graphics modes and it is quite simple to set up extra half bright and HAM modes as well as the normal resolutions. Even a GenLock interface is provided. Things get even hairier when you look at the open window command. Firstly the IDCMP (Intuition Direct Communications Message

Port) flags can be specified allowing a wide range of options. Secondly additional flags allow more options including simplerefresh, nocarerefresh, superbitmap, borderless windows and gimmezerozero. To fully appreciate these options you will need to get hold of some of the detailed manuals but take my word for it, they are useful.

The intuition system is most handy with a wide range of graphical possibilities ranging from menus to requesters. Such event linked features are vital to successful interfacing to the machine. A wide range of MENU linked commands are provided. One provides a link to the IDCMP flags and allows you to monitor almost every conceivable event including whether a disk has been inserted or removed. There are also commands for pulling down menus, selecting options and acting on instructions. Two other important events are catered for. First there is a getfile requester which displays the directory of a specified disk drive and thereby allow the loading or saving of files. There is also a built in requester to handle error situations or request the user to make a choice.

Benchmarks

So how does it shape up? The normal step is to run some bench marks and this is precisely what I have done. The use of bench marks can be tricky and I have taken care to normalise the routines by removing the time taken by loop structures. Table 1 shows a comparison between GFA-BASIC, AmigaBASIC and F-BASIC. Since F-BASIC is compiled, it is understandably faster.

German Alternative

So what do the benchmarks prove? Clearly F-BASIC is well ahead, as expected. GFA-BASIC seems to be between 2 and 4 times faster than AmigaBASIC on the normalised operations. The differences between the types of operation are quite easily explained. Multiplying two variables is a simple integer or floating point operation. Raising a variable to a power involves the use of logs which, being transcendental operations are slow. Similarly the trig functions are slow. GFA-BASIC offers two trig functions. COS() uses the normal approach of a polynomial approximation. COSQ() uses a lookup table and interpolates between entries in 1/16 degree steps (so the booklet tells me). This is much faster but less accurate. The two compare well up to about the fourth decimal place which is probably good enough for most uses.

YA

Conclusions

Overall I was most impressed with GFA-BASIC. The editor provides a comfortable environment for programming and the language is less irritating than AmigaBASIC or F-BASIC. It is both comprehensive and reasonably fast. If a compiler appears I feel that it could be difficult to better. I would like to see some work carried out on the manual with some more detail in some areas. At the going price of £ it's pretty good value. I would want to find out the cost of the compiler and get some idea of its performance, however, before deciding whether it offers a viable alternative to C.

Table 1

	Benchmark	Total time (secs)	Loop Size	Time per operation (secs)
GFA	Bare loop	1.86	50000	-
	y=x*x	9.5	50000	1.52 E-4
	y=x^2	11.6	50000	1.95 E-4
	y=COS(x)	82.6	50000	1.62 E-3
	y=COSQ(x)	12.1	50000	2.05 E-4
ABASIC	Bare Loop	21.6	50000	-
	y=x*x	57.5	50000	7.2 E-4
	y=x^2	296.6	50000	5.57 E-4
	y=COS(x)	174.6	50000	3.4 E-3
F-BASIC	Bare Loop	3.19	1000000	-
	y=x*x	26.4	1000000	2.6 E-5
	y=x^2	97.3	1000000	9.7 E-5
	y=COS(x)	214.0	1000000	2.1 E-4

What's New With

Karen Young takes an in-depth look at the new Operating System upgrade — and finds a more powerful Amiga than ever before!

■ Well, it's finally here, ladies and gentlemen; the much-vaunted upgrade for the Amiga family of computers has just made its way into my machine, and what an improvement it is!

The upgrade comes as three disks — Kickstart 1.3, Workbench 1.3 and Extras 1.3. They can all be backed-up for security purposes (the Kickstart disk will need to be nybbled of course), and the entire package comes documented with a new manual that supplements the two manuals you get with each Amiga.

The upgrade doesn't just end there though. If you are an Amiga 500 or 2000 owner, you could pay extra and have the new Kickstart 1.3 Rom fitted into the machine by a dealer — this is part number 314864-01. Amiga 1000 owners can, of course, load in whatever Kickstart they like, but now the Amiga 500 and 2000 can take advantage of the recoverable Ramdisk facilities like those on the Amiga 1000.

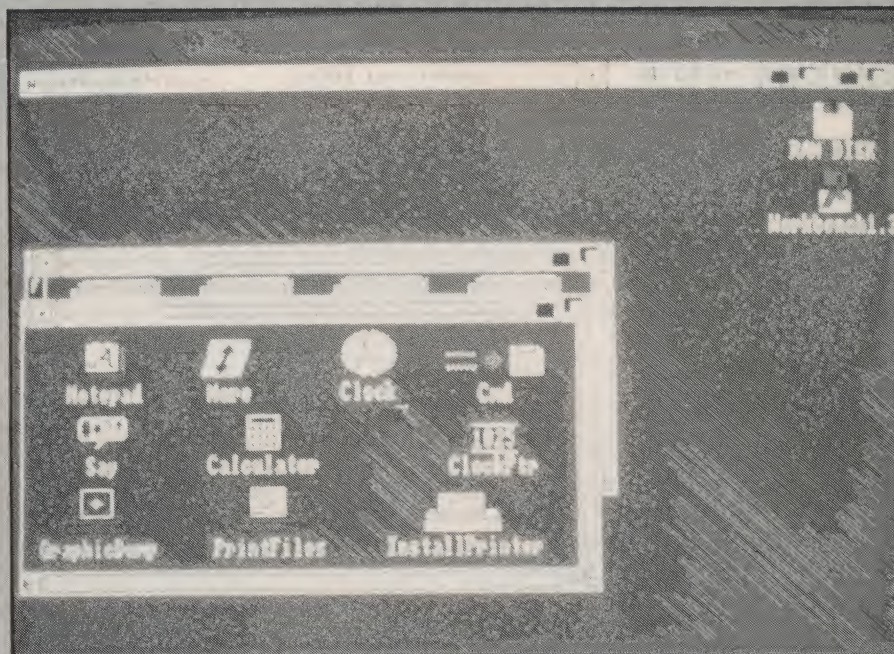
The Workbench

One of the most obvious differences between Workbench 1.2 and 1.3 is the addition of a SHELL program (I note that the DEMOS drawer has finally given up the ghost). SHELL relates directly to a UNIX-type shell, whereby it behaves like a super-set of the command line (in the Amiga's case, this is called the CLI). Essentially the SHELL program can do everything the CLI can do — and more.

When you select an icon and choose INFO from the Workbench menu, a window appears displaying more detailed information about the utility represented by the icon. Using INFO, you can control the TOOL TYPES of an icon (a group of characteristics that determine a utility's behaviour).

One of the big advantages of using SHELL over CLI is that the cursor keys can now be used to edit sections of a command line. Before the days of SHELL, if you typed in a line with a mistake on it, you would have to backspace before rekeying the line again. With SHELL you merely have to move the cursor around and overwrite the error and hit the Return key.

The SHELL has a historical recall option whereby you simply go back past previous keyboard entries by using the up and down cursor keys (on an empty line) and pressing Return when you discover the command you



The new utilities drawer of WB 1.3 — faster disc accessing is a feature

want — to make life even easier, you can simply press Ctrl and R, type in a command (say, DIR) and press the Shift and up cursor key and you will be presented with the last SHELL command that you used to perform a DIR of any directory.

Within the SHELL, you can create aliases for AmigaDOS commands. This single-handedly negates the requirement to set up "Hotkeys" (special programmable function keys storing AmigaDOS commands) as you can simply build on top of the AmigaDOS command set with consummate ease.

By typing: ALIAS [alias] [string], the SHELL will then be told to redirect the [alias] portion of the command to AmigaDOS by transforming it into a [string] and then executing it — in much the same way that Ultrix's ALIAS/HDR command works (but with Ultrix, you will find that it only works on native command files).

ALIAS typed in with no secondary aliases or strings simply returns the dictionary of aliases stored. You can place commonly stored aliases in the s:shell-startup file on the Workbench, so you don't have to re-key them every time you want to make a new SHELL.

SHELL also supports a new "Script protection bit". With Workbench 1.2 these were assigned as:

r — Readable
w — Writable
e — Executable
d — Deletable

Version 1.3 of Workbench supports this, but also has the additional protection bits:

s — Script
a — Archive
p — Pure

This is very convenient, as an EXECUTE script file (the equivalent of an MS-DOS EXEC file) can now be automatically run as a script file and not as a command — speeding things up by using the RESIDENT command and you will have a very fast startup sequence — far faster than the Amiga's initial startup sequence.

The System Drawer

As is the case with Workbench 1.2, the system drawer contains the CLI, the NoFastMem, DiskCOPY, FastMemFirst, Format, SetMap and InitPrinter files. Two new utilities have been added on top of this in the form of FixFonts and MergeMem.

MergeMem is useful when you have additional Ram packs installed, so that when you double click the icon, MergeMem attempts to merge the memory lists of sequentially configured Ram boards. Ram boards must have the same attributes as a continuous bank of memory.

Memory from separate banks are normally stored in separated memory pools (Commodore's terminology not mine). MergeMem attempts to merge all of the memory pools into one large ocean of memory to allow large allocation of memory blocks by programs.

FixFonts simply updates the .font files held in the FONTS directory. This program is used after fonts have been added to, or deleted from any of the sub-directories in the FONTS directory. FixFonts corrects all of the .font files making them accurately reflect the current contents of the sub-directories in Fonts.

Preferences Drawer

The Preferences Icon has now been changed into a Prefs drawer, unlike Workbench

With Workbench 1.3?

1.2 (which was an icon representing a command file), the Prefs drawer of Workbench 1.3 is now a conglomeration of five icons inside a drawer:

Preferences — Opens the Preferences window
Pointer — Opens the EDIT POINTER window
Printer — Opens the CHANGE PRINTER window

SERIAL — Opens the CHANGE SERIAL window
Copyprefs — Copies the system configuration df0:

The last is useful for non-autobooting hard disks. Even if you enter the Pointer, Printer or Serial window directly, you are still returned to the main preferences window when you exit. You have to select Save from the preferences window in order to save any changes you want to keep — as before (Workbench 1.2), you will be put back into the SHELL/CLI or the workbench when you exit the Prefs drawer.

In addition to having all of the printer drives (save for the Generic file) being put on the Extras 1.3 disc, there are two new Graphic gadgets in the Preferences window. Graphicl remains more or less the same, but this time adding a Print Shade option designed for printing images using the A2024 grey scale monitor.

Left Offset horizontally offsets the printed picture. This option effectively sets up a left margin. The offset can be entered in increments of 10ths of an inch. The Centre option disables Left Offset.

Colour Correct R/G/B attempts to correct the screen colours to the output of a colour printer. This option selectively tries to match all shades of either Red, Green or Blue from the screen output to the printer output. Without colour correction, the printer can print (or attempt to print) all 4096 colours, however as the Colour Correct option is increased, the colours can be cut down to 3,172 shades.

The only other major difference is Copyprefs. Double clicking this icon returns a window which, when selected copies the devs: system configuration to DF0:DEVS — this is for users who have set up DEVS on a surface other than DF0:, perhaps hard disks or even large Ram Disks.

The Utilities Drawer

This drawer has more than tripled in size since version 1.2 was issued. Say and Graphicsdump have been moved out of the system drawer (of Workbench 1.2) and put into the Utilities drawer of Workbench 1.3

as a backdrop — so, for example, if you are multi-tasking and you pull down the window using the bar line, the pointer will change from the pointer set up in the applications (perhaps a cross hair or even the default pointer) and turn into the digital clock.

CMD allows you to redirect either serial or parallel device CMD__WRITES outputs to a special file, enabling you to re-route your printer output to a file (useful for creating postscript files when no save as postscript option is available). CMD doesn't allow you to change formats between Parallel or Serial, so you cannot use it to selectively change a file output device.

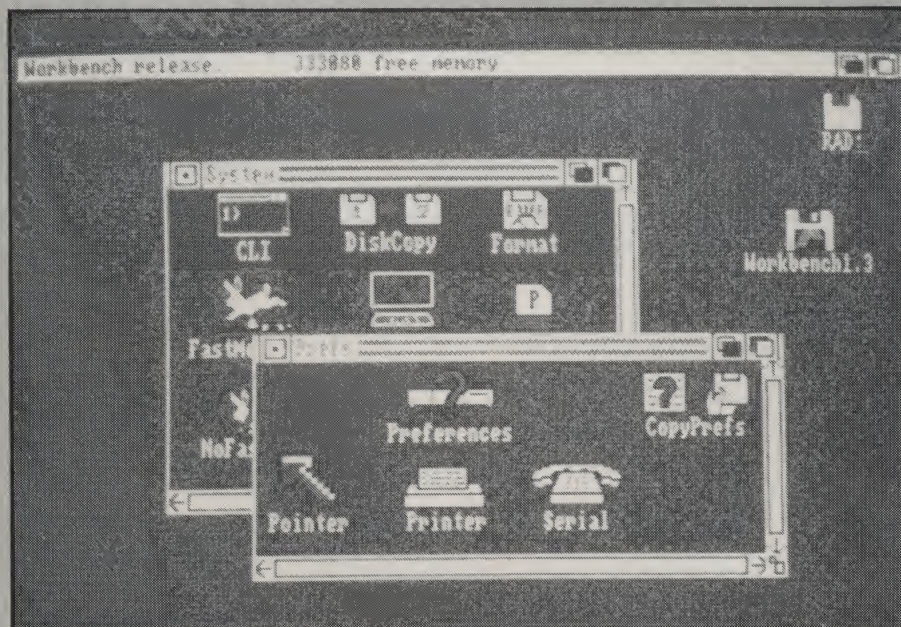
InstallPrinter lets you copy printer driver files from the extras disk to the Workbench disk without having to use AmigaDOS COPY commands or opening a SHELL or a CLI. By simply double clicking the icon (or typing installprinter from the SHELL/CLI), you can easily select which printers you want to support. I note with satisfaction that Commodore have finally relented and supplied us all with a very comprehensive list of printers (normally one had to poach them from other packages and load them across using the AmigaDOS COPY command). My favourite dot matrix printer, the Apple ImageWriter II, is now fully supported.

GraphicDump is a new variation on the old program which sends a dump of the front Intuition screen to the printer about ten seconds after the icon is double clicked — this ten second delay enables you to set up the screen to look the way you want it. This is the same as Version 1.2, but Version 1.3 is quite different in the way that the printer dumps are supported. Now there are five options ranging from TINY through to SMALL, MEDIUM and LARGE ending with a user selectable printer width consisting of xdots:ydots resolution. For example, GRAPHICDUMP SMALL could also be entered as GRAPHICDUMP 640:200

(T)There is now a new clock supplied with version 1.3. Digital2 (as it is called) sits in the title bar (so it doesn't get in the way of everyday operations) — also, the clock will now no longer freeze when the alarm is set. With Version 1.2, the clock used to freeze when the alarm requester was displayed — nowadays this problem has been resolved, but please note that you cannot close the clock when the alarm is set (no major problem if you are using the Digital2 clock).

Two Ram Disks

There are now two Ram disks on the workbench. The standard Ram handler which is known as Ram: remains unchanged, but the new Ram drive — the recoverable Ram drive device (also known as RAD:) offers a great deal more and among Amiga 1000 users and



The new preferences drawer (as opposed to icon) has separated the individual features of the program and turned them into icons

Graphic 2 contains a number of new features that are mainly used for printing and dumping — for example Smoothing (on/off) toggles between anti-aliased diagonals and is best used with packages that perform graphic dumps of files for output (ProWrite, PageSetter, NotePad and so on...)

The major differences between versions are essentially due to five new programs:

ClockPtr — Simply turns the pointer (regardless of whether it is your own design) into a digital clock — useful should you want to keep an eye on the time. This clock only appears when you are using the Workbench

upgraded Amiga 500/2000 users, this will probably become the de facto standard Ram handler.

The Recoverable Ram disk enables you to access the contents of the Ramdrive.device after rebooting your machine. Even if you reboot with something other than the original Workbench disk (for example a wordprocessor with another Workbench on it), then the Recoverable Ramdrive will still be present and will still contain the file — you cannot lose the contents of the Ram drive unless you power off the computer or invoke the REMRAD command (REMount RAD: device).

The crunch is that now you will need the new Roms fitted into your machine before you can use the new recoverable Ram drive. The installation of the Roms will take about ten minutes. Most of that time is taken up by removing the RF interference shield, so don't let anyone fool you into thinking it is either time-consuming or expensive. Of course, Amiga 1000 owners need not fit Kickstart Roms as their system relies on the Kickstart loaded from disk.

compatible printer drivers, and the ones available elsewhere are too slow or too large or are tied down to programs such as *Professional Page*. We want a Commodore-approved Postscript driver now. If Acorn can get one written for their technically superior Archimedes machine, why can't you?

The Extras 1.3 Disk

FED has changed dramatically since the original version of the software came to light. This package has been enhanced so as to make character sets easier to create from scratch.

The gadgets remain unchanged although there are a few enhancements that enable the user to automatically kern letters so that the tails and loops of letters like y or g slope under other letters.

An algorithmic bold typeface generator has been created so as to make it easier to produce twice as many characters (although some minor tweaking will be needed as some letters lose their distinctive characteristics

The A2090A is the new SCSI board for the Amiga 2000. Once the Kickstart 1.3 Rom is in place, you can boot directly from the hard disk without the need for software patches loaded from floppy. The A2090A works with an auto boot Rom fitted to the A2090A (check that you have them first!).

Unfortunately the auto boot software will not work with many of the SCSI boards for the Amiga, but it will merely be a matter of time before we see the Roms (or their equivalents) incorporated in the latest SCSI boards for the Amiga 500 and 1000.

The Fast File System (FFS) is a new operating system that will work with any Amiga hard disk (be it proprietary or third party) The only restriction is that the hard disk driver must support the standard set of disk commands and present the media in standard track and sector formats (very few hard drives other than the oldest or the very high density formats work in anything other than this).

The initial partition of the hard disk will not support FFS because the system needs to auto boot from a track/sector format that the auto boot Roms will recognize, but any partitions using version 1.3 of the MOUNT command will happily work.

Since most hard drives for the Amiga use DMAs (direct memory accessing) for fast data transfer, the old system is quite inefficient because it does not run at full memory speeds (thus slowing down the hardware quite a bit). So, in order to combat this, the FFS stores nothing but data in the data blocks. This means that large read and write operations can be performed in one pass (providing the data blocks are sequentially arranged), something the FFS tries to do at every opportunity.

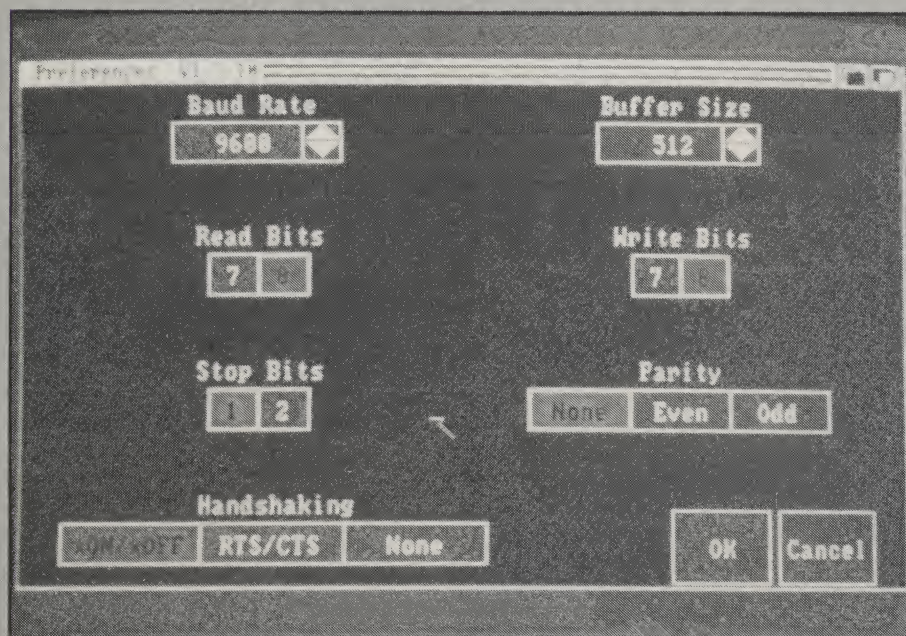
You get more storage capacity as well. Each FFS format disk gets about 4.9 per cent extra storage space amounting to some 50K per megabyte. There is a 75 per cent speed increase when transferring files at the suggested maximum transfer rates and validation of a 20 megabyte hard disk is about 40 times faster than under the old system!

The upshot of all this is that the Amiga can run about as fast as any other hard disk system I have seen on any machine (apart for the Macintosh which uses custom chips as part of its SCSI interface). The speed of the FFS is amazing, and certainly warrants serious consideration of upgrading to hard drives as soon as you can afford the ludicrous prices of even the most lowly Amiga hard disk.

Conclusions

Version 1.3 was a long time coming, and it should sort out a lot of minor problems associated with the Amiga's memory and printer support. I especially liked the speed increase of the workbench, judging by the sound of things, the workbench is much more efficient at disk accessing, suggesting a larger memory cache and an archived directory system (hence the greater need to MOUNT and DISMOUNT the disks whenever a new disk is needed).

Hardware I/O is not the only thing that has been improved — memory allocation and system interaction with AmigaDOS is very good now. With the recoverable Ram drive and



Baud rate selection from preferences

RAD: will survive many of the worst "guru meditations" as well as a forced entry into whack.

More Printer Support

As I mentioned earlier, all of the printer drivers have been moved out of the Workbench and have been squeezed onto the Extras 1.3 disk (save for Generic — the TTY emulator). Of the new range of printers, the laser printer support has improved dramatically — Hewlett Packard printers from Laserjet through Series Plus and Laserjet II protocols are all supported, as is the DeskJet. Although the Apple ImageWriter II is supported, I was frankly amazed to see that LaserWriter (II or NTX) wasn't supported, neither were there any general-purpose Postscript printer drivers available yet.

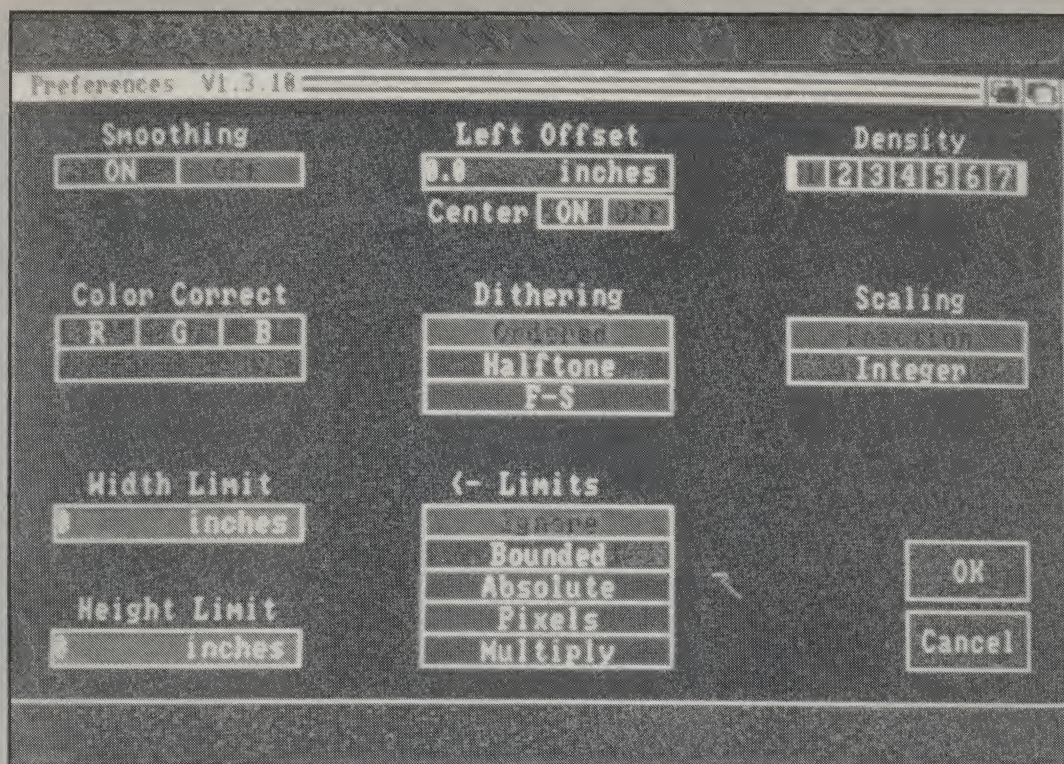
Get your fingers out Commodore! People are clamouring for Postscript-

when transformed into bold).

KeyToy 2000 is a new version of keytoy for Amiga 2000 keyboards. In the past, users have had to make do with the layout of the Amiga 1000 (which is different). Micro Emacs remains unchanged as before.

Hard Disk Support

If you own an Amiga 2000 and have Workbench 1.3, you may be pleased to note that there are some new facilities that pertain directly to the use of a SCSI (Small Computer Serial Interface) based hard disk system. Now you can auto boot directly from the hard disk as well as make the most of the different disk accessing methods employed by all of the modern Winchester Disks. To support this, Commodore has included a Fast Filing System (FFS) which increases the speed at which data is transferred between the Amiga and the SCSI port.



Printer printing options set by Preferences — quite a few more features

the ability to set up the machine in more configurable options than ever before, I would recommend the upgrade as soon as possible to anyone serious about using the machine. There is talk about freezing the upgrade from now on, with rumours flying about the final upgrade for the A1000 which involves a

piggyback board enabling I.3 Kickstart Roms to be fitted in addition to Ram loaded OS software. I await these developments with anticipation.

The lack of a Postscript driver is annoying, but no doubt somebody will have the business acumen (or just plain good sense) and write

a commonly available Adobe-licensed driver soon (that's a plea by the way...)

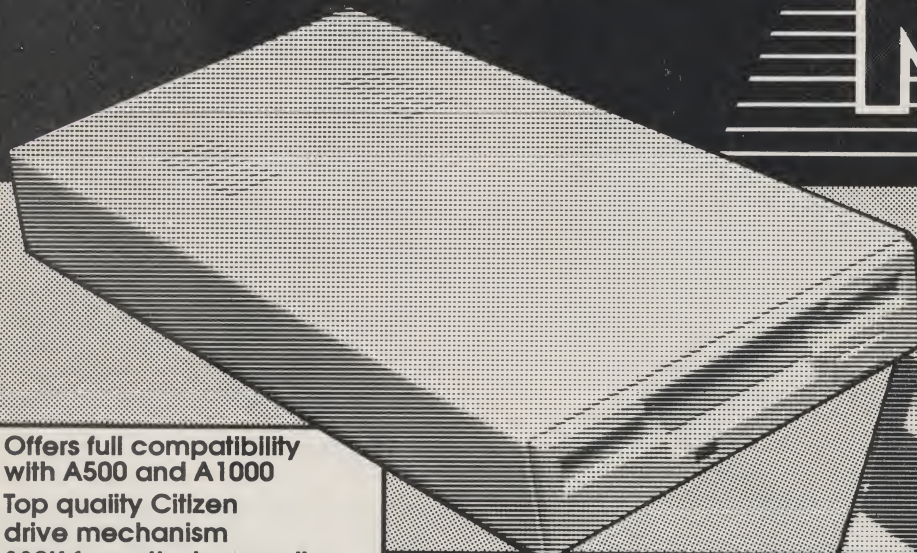
All in all Workbench 1.3 is a significant upgrade worthy of the wait. We can only hope that Commodore will be inserting the I.3 Kickstart chips in the latest factory-assembled Amigas as soon as possible

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Amanda Jones takes a look at a language which promises to offer Amiga users some spectacular advantages

■ **ARexx** is the Amiga version of the REXX programming language as described by M. F. Cowlishaw in *The REXX Programming language: A Practical Approach to Programming* (Prentice Hall 1985). The Amiga implementation is by William S. Hawes, the author of such programs as *ConMan* and *WShell*, and its arrival on the Amiga scene looks likely to further enhance the possibilities of a machine that even now is only just beginning to show its true potential.

ARexx Hits Town

ARexx is an interpreted language which supports a wide range of high level operations. It includes sophisticated tracing and debugging facilities, and contains many other features of interest. On the surface one might be forgiven for regarding an ARexx program as being similar to Basic. Certainly the range of high level operations that are available do bear a certain amount of comparison with Basic but a more detailed examination of the language reveals unique characteristics which clearly show that ARexx has other goals in mind. The use of ARexx falls into three reasonably distinct categories and these provide a convenient way to discuss the language.

Firstly, because ARexx provides easy links straight into AmigaDOS, it is both possible and profitable to use it as a command language. ARexx programs can be used to replace the type of facilities which might otherwise be implemented using the *macro type* executable script files which AmigaDOS itself provides. ARexx is however capable of considerably more versatility in this area and yet, because the language is small, it is an easy language to learn. You create ARexx programs using **ED** or any similar text editor, Listing 1 asks the user for a program name and a device name, concatenates the answers to build a particular command string, and then transmits that string to the underlying AmigaDOS for additional processing.

If the user had entered **testprogram** and **DFI:** the final command transmitted to AmigaDOS would have been this:

RAM:Findme DFI: testprogram

ARexx contains all the usual types of statements for flow control: loops, if-then-else, case selection etc. It also supports all common string concatenation, arithmetic, logical and operand comparison operations. As well as supporting simple variables the language includes some interesting variations on indexed array storage. ARexx is essentially **typeless**, variables do not have to be declared as such

because operands are regarded as strings which are validated by virtue of the context in which they are used.

ARexx contains a large number of sophisticated features which will satisfy a second class of user — those who need, or would like to experiment with, the full capabilities of a language capable of enhancing an already powerful multi-tasking operating system by providing a programmable interface, a potential prototyping tool, and a powerful set of high level functions which can be used to create fully fledged independent ARexx based applications programs. The language supports the creation of *procedures*, functions with their own symbol tables (in other words their own local variables) but at the same time it allows selected areas of the calling routine's symbol table to be exposed and thus allows selected variables from the calling routine to

become accessible to the function being called. ARexx functions may be part of an ARexx program, may be available as part of a shared library, or may even be a separate program. ARexx includes mechanisms which allow string expressions to be parsed and by using a template control it is possible to extract selected sub-strings and assign them to chosen variables. It supports recursion and even offers on the fly expression analysis via an **interpret** instruction enabling an ARexx program to evaluate ARexx expressions dynamically.

The Current Interest

Despite the fact that it is well suited for such purposes, the current interest in ARexx does not stem primarily from its use as a replacement command language. It stems from the fact that ARexx provides inbuilt mechanisms to support *inter-program communications*, meaning that it allows one program to interchange information with another. It is this third area of potential use which is causing the current excitement within the Amiga world.

A whole syntactic class is reserved for program statements which have no meaning to ARexx itself. When ARexx finds such a statement it classes it as a **command** and assumes it is intended for another application. Such commands are transmitted via a special *command interface* to an external application that has previously announced its ability to receive such commands. The application will interpret the command, perform the required operation, and then transmit a message back to the original program which enables it to determine whether or not the function was performed successfully. On the Amiga all of this is achieved with the help of the underlying multi-tasking *Exec* message passing system.

The global communications and resource manager which ARexx uses is called the *resident process* and this must be active before any ARexx program or communications facilities can be used. Programs which support

ARexx communications normally look for the tell tale presence of a REXX public message port and may, if this is not found, start up the resident process themselves. In addition to launching programs and controlling the communications facilities the resident process acts as a general resources and housekeeping manager. One example of a resource that the resident process controls is the **Global Tracing Console**. ARexx allows a separate trace console to be opened which deals *only* with the tracing/debugging information — thus preventing the problem of tracing I/O being interleaved with normal program I/O.

If all this were not enough the ARexx package includes developers' information for the design and implementation of ARexx interfaces which includes both details of the support functions present in the system libraries and of the necessary include files, all of which are available on disk as part of the standard package.

The Implications

The implications of having a standardised programmable interface available for the Amiga are far reaching. In theory at least it means that all software products which support the ARexx interface will be able to exchange information. The close adherence to the original REXX language will hopefully mean the interface will not be restricted to just Amiga products but may even open mainframe and other doors for the Amiga user. The potential usefulness of the interface depends to a large extent on whether software houses adopt the ARexx option but the current signs are encouraging. *AmigaTex* (Radical Eye Software), *TxE-Plus* (Microsmiths), *Cygnus Ed*, *C.A.P.E.68K* (Inovatronics) *MicroFiche Filer Plus*, and of course *WShell* (William S. Hawes) already support ARexx. It is particularly significant that Precision Software have recently introduced ARexx facilities into their top of the range database product *SuperBase Professional 3*. The SuperBase ARexx facilities are included as part of the database management language **DML** and provide the user with the mechanisms which allow ARexx communications to be performed from within **DML** applications programs. Emerald Intelligence, who wrote the expert system *Magellan* shell, have promised an ARexx interface in time for the 1.1 release and there is also a growing collection of Public Domain ARexx software beginning to appear.

The ARexx package costs £39 and comes supplied on a single disk together with a well produced manual. The content of the manual is excellent, it contains a suitably gentle introduction to the language but later chapters deal in detail with the type of material that the more advanced user will be able to get their teeth into.

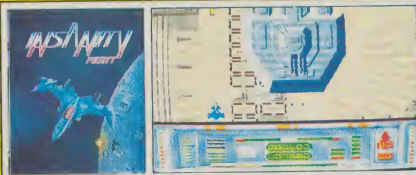
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Title: **ARexx**
Author: **William S. Hawes**
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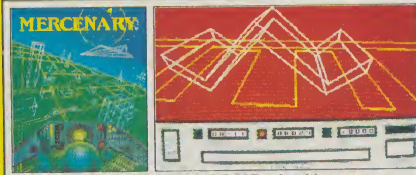
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Gordon Hamlett goes back to school but with guns and grenades instead of books and chalk

■ Somewhere in Europe there is a school. Not just any old school but one where the elite forces of Nato go to train. The skills learned here are designed to strengthen both mental and physical reflexes until the trainee is allowed to leave the academy — a perfect fighting machine.

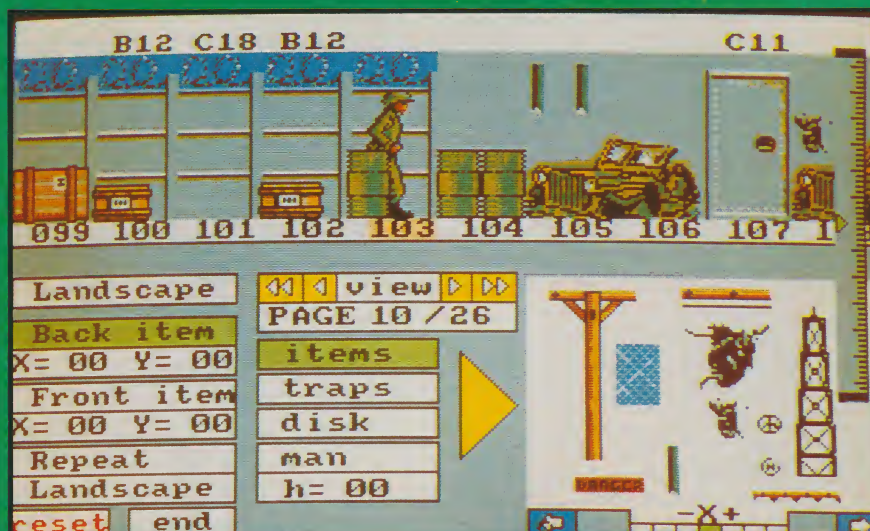
Up to twelve different players can compete at any given time and there are five different courses to test their skills. The first of these is a purely physical course — leaping over obstacles, clambering through tunnels, scrambling over walls and hanging from ladders and the like. Then there is Rex, the not so friendly German Shepherd dog intent on hindering your progress. All the time, your instructors are shouting at you to get a move on, do ten press ups or take evasive action when there is an air raid.

The risk route requires you to learn all about handling grenades, explosives and the like whilst avoiding the unwelcome attention of mines and rubber bullets. Close combat mode includes much of the above together with a few real live opponents that you need to kick, punch, blow up or otherwise dispose of. The combination route includes elements from all the above three courses.

As if that wasn't enough, you can also design your own course, using the included screen editor. Here you can devise the nastiest, meanest tricks in any combination you desire. A few tips are included to help you on your way — obviously, it would be all too easy to indulge in overkill. There is a prize to be awarded for the best designed course which will be included in Action Service II which will involve an actual mission rather than just training exercises.

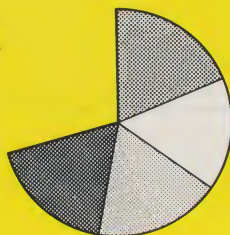


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Graphics: **19**
Sound: **16**
Gameplay: **18**
Value: **18**

What action your man performs depends on whether he is standing, kneeling, lying down or in combat mode. All very confusing at first but you soon get the hang of it.

If you find your performances are still not up to scratch, you can always watch the instant replay. Every move that you make is recorded on video and you can play the tape back speeded up, normally, in slow motion or even freeze frame if you really want to analyse your performance that deeply.

The display is bright and colourful and adds considerably to the game's appeal. The one area of weakness is the instructions which could be a lot clearer having been translated from the French. Altogether, an enjoyable effort.

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However large or small, the key to writing any program is to use logic to break up a task into neat, manageable pieces, each of which is as simple and as clear as possible. In most cases this means breaking a program up into functions, connected by function calls. (See the October/November issue.) A program which is designed in this way is often called 'structured'.

Much is said about program structure in magazines and books about programming but it is seldom well-informed and it is often clear that only the most experienced programmers fully understand what programming structure means and what it can do for programs.

Pictures are good for solving problems: they help us to see the way forward, to visualize a program in our heads and even to predict difficulties and recognize short cuts. It does not matter whether a picture is 'accurate' or realistic as long as it helps in some way. People often doodle while thinking or sketch out plans on paper to help themselves. Computer programmers have done this in the past and as a result have scribbled down and even refined two notable kinds of diagram which assist the process of planning programs. The diagrams are called flow diagrams and structure diagrams.

It is worth remarking that every once in a while somebody in the field of computing points out what is quite obvious about the structure of computer programs: that they are hierarchical structures and that they can effectively be planned using the two diagrams mentioned above. Structure diagrams are sometimes called 'Jackson diagrams' or 'Burgess diagrams' as though they were something remarkable. The fact is that, whether we call them 'Jackson diagrams' or 'Burgess diagrams' or just 'structure diagrams'

the user then builds any shape he or she requires. The plasticine lumps are places where data are kept and the straws represent routes, pointing out which other data are related to any given lump.

An adventure game is like a linked data structure. An adventure game is a map of rooms connected by routes North, South, East and West. The rooms are like the lumps of plasticine, holding some information, and the exit directions are like the straws. They tell you where you which other rooms/data relate to those you are looking at now. (Fig 3)

In fact, if we step back from all that has been said up to now data structures are like adventure games, they are like computer programs and they are all like interconnected office blocks or lumps of plasticine joined by straws! All of the structures we have been talking about are really just the same thing: they are made up of important, simple pieces joined together by something which allows them to work in cooperation. Computer programs are just linked data structures in which the data happen to be functions.

In C, the plasticine lumps are known as

C: EVOLUTION, I

This month Mark Burgess explodes the myths about program structure and leads the way to the secrets at the heart of the Amiga

Thinking in Pictures

In the October/November issue, a computer program was described in terms of a group of cooperating offices in an authoritative hierarchy. The illustration given was of a number of boxes joined together by lines of communication. This picture is a good representation of what a program is without its data, but once we include variables and large amounts of storage in a program, the idea has to be modified and expanded to account for the data as well as just the flow of logic. This idea does not really apply in a language like Basic, in which the only way of storing large amounts of data is by disk filing.

When we include data there will be patterns, not only in the way that the logic develops, but also in the way that data accumulates. The advantage of anticipating those patterns is that they often give a clue about how to solve a problem. The very 'shape' of a mass of data could suggest the best way to store it, or even process it. The aim, then, is to imagine a computer program as a working model: a society of operations which runs in an organized way in order to process a pattern of data. It may sound a little grand, but the idea is really trivial.

is greatly irrelevant: the basic ideas underlying these methods are simply obvious and intuitive: a picture is a good way to plan something complicated, to see the relationship between different parts of a problem and to coordinate the solution.

We have already talked about the structure of program logic in the October/November issue. This article is about the structure and forms which data can have. It will even touch on the way in which the form of data can affect the form of program logic.

Data Structure

A data structure is almost a new animal to Basic programmers. The only structure available in Basic is the array.

There are no tools in Basic to custom build data structures, so we must think about why they are necessary and how to put them together from scratch.

The idea behind a data structure is that you organize a large amount of related data in a way which naturally reflects what the data are about, and which makes the data easy to interrogate.

The most frequent and useful kind of structure is called a 'linked data structure'. This is a scheme in which information is linked together according to a pattern which assists its processing. For example, a mass of strings might be linked up to form a list, or linked to form a family tree structure. A good impression of what is meant by a linked structure is a lot of pieces of plasticine joined together by drinking straws (fig 2). This is not a joke, but an honest likeness of a linked structure.

A programming language, like C, provides the building tools (straws and plasticine) and

struct variables or 'structures' and the straws are no more than pointers to structure variables.

These somewhat whimsical generalities of computer programming have been thrust upon you for a reason: to help you to see the point and the value of structure and form in programming, and to give you a firm handle on how data structures work. Now for the details.

Struct Types

Struct variables are not like integers, characters, floating point variables or like any of the variables we have used up to now. They are 'composite' or 'aggregate' variables, meaning that they are made up of several values at the same time.

Struct types are like parcels which hold several variables at once. Programmers can make templates for all kinds of varieties of struct type variables by specifying what kind of variables and how many a given structure should hold.

Each composite variable which is then declared to be of that type will automatically consist of several members, of the types chosen. Consider an example:

```
struct NewType
{
    int member1;
    float member2;
};
```

The statement above declares a template for a struct type variable which is to hold one integer value and one float value. No variables have been defined here, only a type of variable

has been defined. If we wish to declare a variable called 'x' of this type, we would write: *struct NewType x;*

Both the integer and float parts are held under the collective name 'x'. They can be addressed separately using a '.' dot character:

```
x.member1 = 10;
x.member2 = 0.34;
```

Or they can be hidden from view and assigned together to another *struct* variable, provided it has the same template.

```
x = y;
```

Look at the example in Listing 1. A structure variable called 'a' is defined. It is assigned member by member, then it is copied all in one go to another variable 'b' of the same type and printed out, member by member. Study the example and try typing it in. It is the

prelude to a more powerful use of *struct* variables.

Struct and Pointers

The '.' dot operator is not the only way to get at the members inside structures. More often than not, we are not interested in structure variables which are declared in the heading of a function, but instead use structure which are allocated dynamically from the free memory store of the computer. (Recall the article in the last issue on dynamical memory allocation.)

Listing 2 is a version of Listing one using dynamical memory allocation instead of program declaration. Notice how, first of all, the space for a structure must be claimed by using *malloc()* and the *sizeof()* operator. Also notice how pointers must be cast into the right shape using:

```
(struct Name *)
```

to convert the character pointer returned by *malloc()* into a pointer of the right kind for the compiler.

There is a notable difference with this method and the previous method in Listing 1 and that is the following. When allocating memory dynamically, we use pointers to refer to the structures, instead of variable names. This gives the freedom to allocate as many variables as desired without having to have a separate name for each one. The fact that we use pointers instead of names is the crux of what data structures are about: when there are large numbers of data, names are not a good way to sort one variable from the next. A better way is to rethink and take advantage of any patterns which exist by 'laying out the data on the table' and talking stock from a high level. Pointers provide the answer to this problem, as we shall soon see.

When we are given a pointer to a structure, rather than a variable name, the '.' dot symbol is replaced by an arrow '→' formed from a minus sign followed by a greater than sign. In other words, if *ptr* is a pointer to a *struct* type:

T, DEPTH AND FORM

Listing 1

```

/*****
/* STRUCT Example B = A #1 */
*****/

#include <stdio.h>

/*****
/* Define Struct type */
*****/

struct demo
{
    int member1;
    char member2;
};

/*****
*****/

main ()
{
    struct demo a,b;

    a.member1 = 12;
    a.member2 = 'f';

    b = a;

    printf ("b.member1 = %d",b.member1);
    printf ("b.member2 = %c",b.member2);
}

```

Listing 2

```

/*****
/* STRUCT Example B = A #2 */
*****/

#include <stdio.h>

#define code 0

/*****
/* Define Struct type */
*****/

struct demo
{
    int member1;
    char member2;
};

/*****
*****/

main ()
{
    struct demo *a,*b,*c;

    a = (struct demo *)malloc(sizeof
        (struct demo));

    if (a == NULL)
    {
        printf("No memory");
        return(code);
    }

    b = (struct demo *)malloc(sizeof
        (struct demo));

    if (b == NULL)
    {
        printf("No Memory");
        free ((char *)a);
        return(code);
    }

    a->member1 = 12;
    a->member2 = 'f';

    *b = *a; /* copying contents of variable */
    c = b; /* copying pointer reference */

    printf ("b->member1 = %d",b->member1);
    printf ("b->member2 = %c",b->member2);
    printf ("c->member1 = %d",c->member1);
    printf ("c->member2 = %c",c->member2);
}

```



```
struct Name *ptr;
```

and *ptr* points to a valid structure, allocated in memory, then the first member of the structure would be referred to as:

```
ptr->member1
```

as opposed to:

```
x.member1
```

Study the example in Listing 2 and compare it to Listing 1. Notice the differences and the similarities.

Linking Structures

If we go ahead and allocate a hundred structures in which to store data, then it means that we need a hundred pointers in order to find them. The logistical problems of dealing with that number of pointers can be mind boggling unless we think carefully. This is where structuring enters the argument.

The answer to remembering all of the pointers is to organize them in a pattern which makes them easy to work with. This is done by adding pointers to the *struct* variables themselves; in other words, making one of the members of a structure a pointer to another structure and so on. This is a way to link them all up making a list or a tree or whatever structure is best suited to the task. In a more elaborate arrangement, one *struct* type could hold the pointers to four other *struct* type variables (think of the adventure game with N,S,E and W). Whatever the pattern is, the result is called a data structure and its purpose is to tidy up your storage habits.

Coding Structures

Listing 3 is an example of the simplest kind of linked data structure, the linked list. It is a one dimensional list of items which starts from a place called the 'root' and ends where the last pointer in the chain has the value NULL. A linked list has two major advantages over an array. Firstly, it is not limited in size: it can grow and shrink according to the requirements of a program. The only limitation is the memory available in your computer. The second advantage is that the list can be reorganized simply by reconnecting the pointers in a new configuration. You might want to do this in order to sort the items alphabetically, for instance.

The example allocates the memory for ten items to form a list, and connects them up. The last pointer in a linked list always takes the value NULL as a warning for programs not to try reading beyond the end of a list. The user types in an integer number for each structure, the list is constructed and is then printed out.

Try typing in the example and modifying

it to store more interesting data. You could even try to sort the items in a list by reshuffling the pointers.

algebra programs which generate massive data structures incorporating n-dimensional trees! These programs would not be possible in a

Listing 3

```
/* **** */
/*
/* Linked List Example */
/*
/* **** */

/* Simplistic example. Program */
/* should really free() all */
/* allocated memory when quitting*/

#include <stdio.h>

#define code 0
#define true 1
#define false 0

/* **** */

struct Item
{
    int value;
    struct Item *next;
};

/* **** */

main ()
{
    struct Item *root,*end;
    struct Item *CreateList(),
    *SortList();

    root = end = NULL;

    root = CreateList (root,end);
    PrintList (root,end);
}

/* **** */
/* Level 1 */
/* **** */

struct Item *CreateList (root,end)

struct Item *root,*end;
{
    int i,val;
    struct Item *mem;

    for (i = 1; i < 10; i++)
    {
        printf ("Enter integer %d:",i);
        scanf ("%d",&val);
        skipgarb();

        mem = (struct Item *)
        malloc(sizeof(struct Item));

        if (mem == NULL)
        {
            printf ("No memory");
            exit (code);
        }

        mem->value = val;
        mem->next = NULL;

        if (end == NULL)
        {
            root = mem;
            end = mem;
        }
        else
        {
            end->next = mem;
            end = mem;
        }
    }

    return(root);
}
```

Evolution

The structure of a program has to reflect the data structure it manipulates. A program's data structure must always be designed before its logic is coded, because it is always possible to change the logistics of processing data without changing their structure, but the reverse is not true.

A gratifying feature of linked data structures is that they can be altered very easily to store more information, simply by adding more members to a structure. To give an extreme example, each member of a list could contain a list itself (making a two dimensional list, or dynamical array). No rewriting of code is required to extend the structures; additional code can be added on.

The advantages of a data structure over ordinary variables and arrays is clear: it can grow and shrink dynamically according to the needs of the user; it can be reorganized, resorted and even rebuilt by careful manipulations of pointers and structures. Data structures can cope with much more complicated, interrelated information than primitive variables can. They can be one dimensional, two dimensional or more. A one dimensional chain is called a linked list. A structure which splits into two pointers at every new structure is called a binary tree. (fig 4) All manner of structures are possible. Only the imagination is the limit.

Apart from my role as author of this series, I have written a number of computer

language which could not cope with depth and structure in data, in the way that C can. In fact, the core of one program has been adapted to make four totally new programs, simply by adding to or altering the members in its structures.

C on the Amiga

The adaptability and versatility of linked data structures has naturally been imported into the Amiga's operating system. Both AmigaDOS and Intuition are designed carefully around linked data types like the ones mentioned here and the programmer interface is optimized for the C language.

Every window that you see on an Amiga screen is put together by creating a linked data structure of its features and attributes. The operating system reads the data structure and renders the information as graphics, using complex data maps of its own.

In the space provided it is impossible to cover everything there is to know about structured data. I hope that there is enough here to give you a taster of what can be done with C.

YA

Next issue, in the final article in this overview of the C language, we use the knowledge gained this month to look at the Amiga's windowing system Intuition and look at how to use it to obtain attractive, window-based displays.

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Purple Saturn Day

Kevin Crosby checks out an Olympiad with a difference, this one takes place on Saturn!

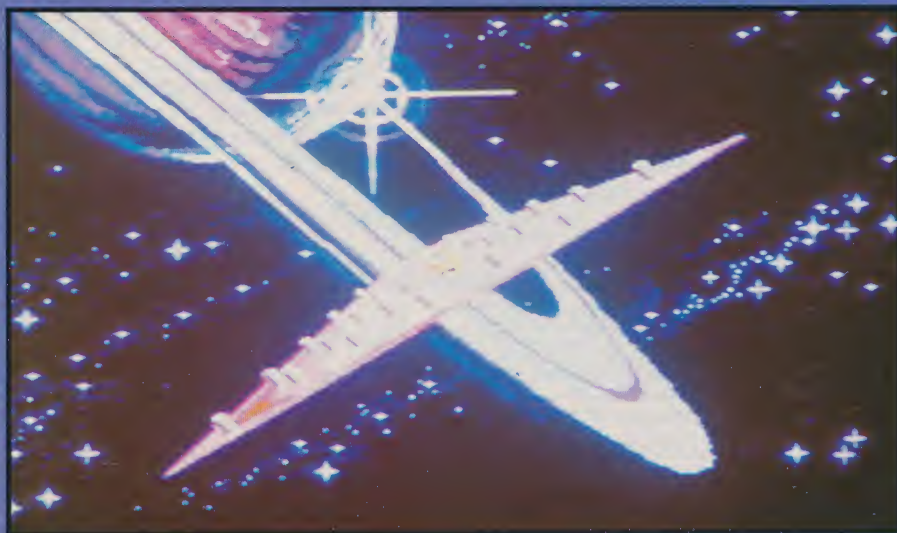
■ Hot on the heels of *Captain Blood* (see last issue) comes *Purple Saturn Day* from those clever little people from France — Exxos — who have set themselves a hard act to follow with respect to the graphic and sound quality

planted along the course. If you're behind you can move out of the asteroid field to catch up with your opponent but you do lose out on points from passing the markers on the correct side.

The next event involves the mastery of Energy with the Tronic Slider. The idea here is to slide around an orbital arena finding balls of energy, blasting them and collecting the fragments. However you need to remember that your fellow competitor is doing much the same sort of thing and you quite within you rights to bash into each other to shake a few

exciting.

Both competitors face a brain wall. The two sides of the brain are the two players' territories. Each player controls an electro-ball which you must bounce onto the brain which will either reactivate you side of the brain or take out your opponent. He is of course also trying to do both. The brain itself is made up of electronic components which you must inject with power to succeed. Once all the chips on your side have been activated by a charge and all six pins linked to the Exxos logo in the centre of the brain have been lit up and



demonstrated in *Captain Blood*.

Purple Saturn Day is a quartet of intergalactic sporting events which is held every year on Saturn when the skies turn purple, hence the title. Eight different life forms take part in these event in order to win...wait for it... a kiss from this year's Purple Saturn Queen, who I hope is female! Now call me an old cynic but I can't really see a peck on the cheek from some extra-terrestrial pageant Queen being incentive enough to get life forms from all over the Solar System to drop everything and head for Saturn. I therefore conclude that us Earthlings must be the only species in the Galaxy with such a mercenary attitude to sporting events. Anyway I digress!

The four events you must complete are designed to test your mastery of Space, Energy, Intelligence and Time. Before the competition itself you are allowed to practise any or all of the events at your leisure.

Firstly we have Ring Pursuit which is your test of Space mastery. The object is to circumnavigate Saturn through the famous Asteroid Ring while avoiding the aforementioned lumps of space rock. Points are awarded for beating your opponent round the planet, for going to the right and left of the red or yellow markers (respectively)

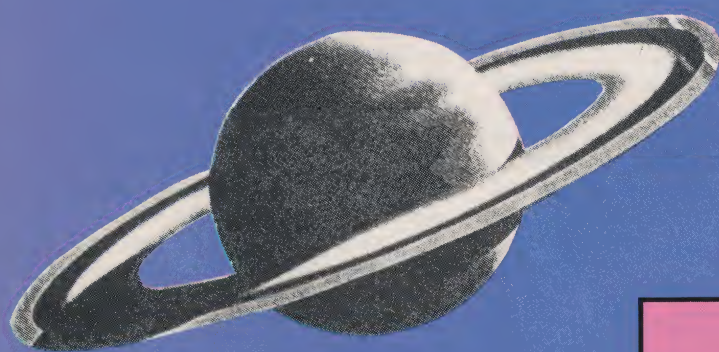
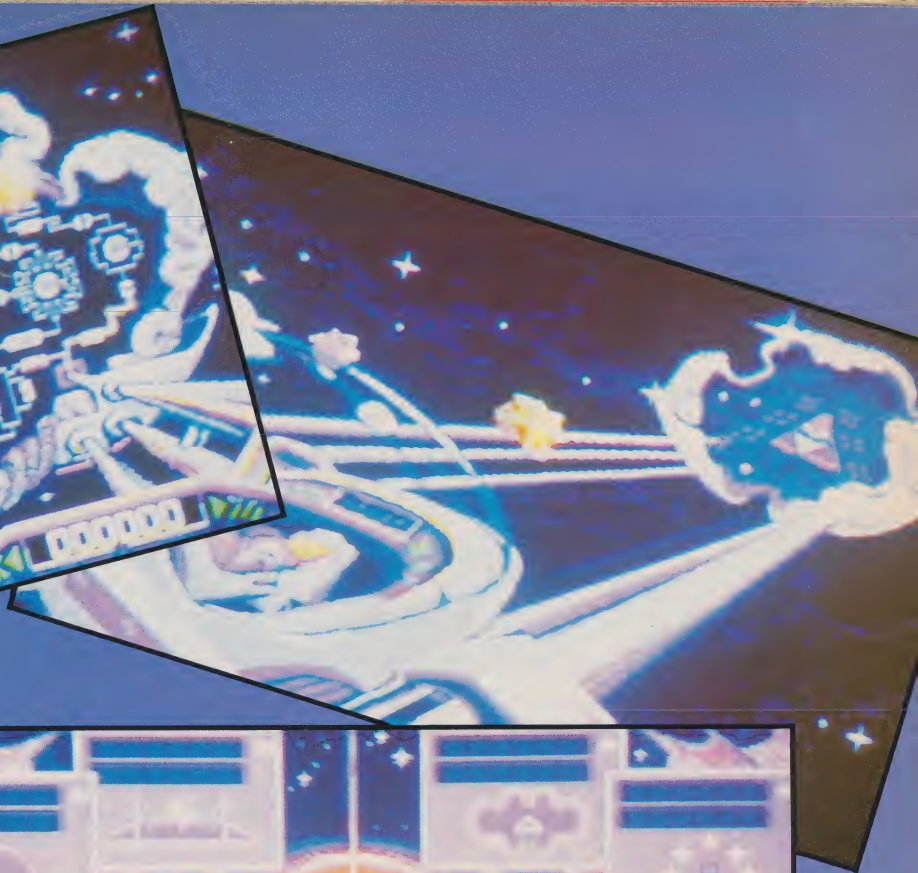
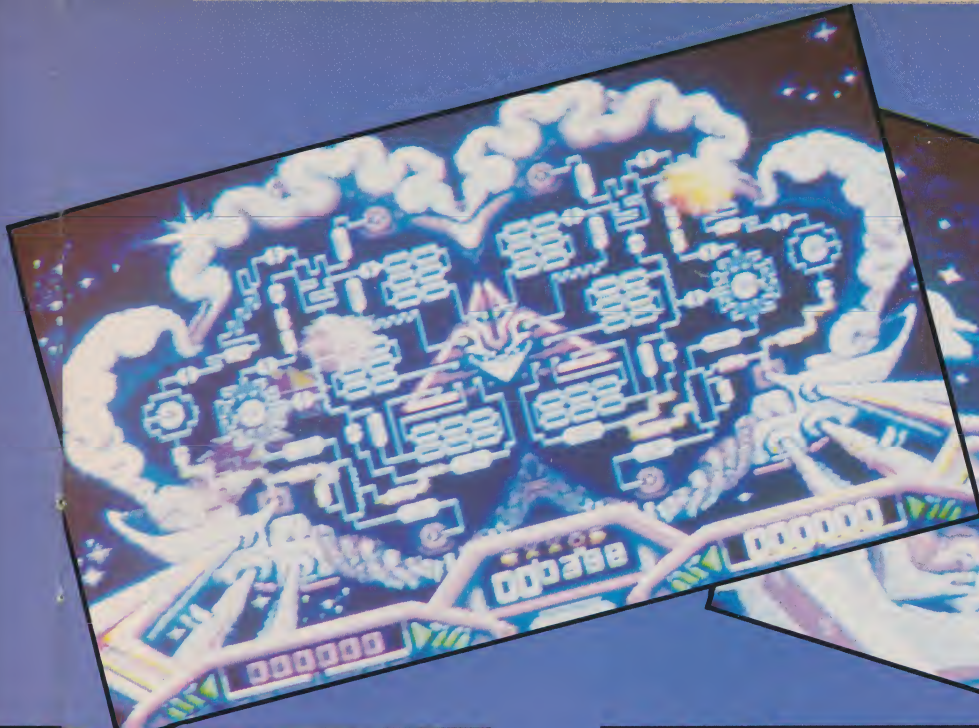


fragments free from your computer controlled rival.

The Brain Bowler is next, covering the Intelligence section of the games and although is probably not, at least to begin with, the most accessible of the games is certainly the most original and, if you stick with it the most

provided, of course, that your opposite number hasn't beaten you to it, then the game is complete, and your the winner.

The final event is the Time Jump in which you must jump as far as possible into the future by means of a gravity catapult. You must catch as many sparks as you can in the three attempts



you get before your jump into the future. The more you capture the further into the future you go.

Hats off once again to the guys at Exxos who have come up with yet another off-beat yet highly enjoyable package my only regret was that there was no two player version.

I await the next package from Infogrames with anticipation!

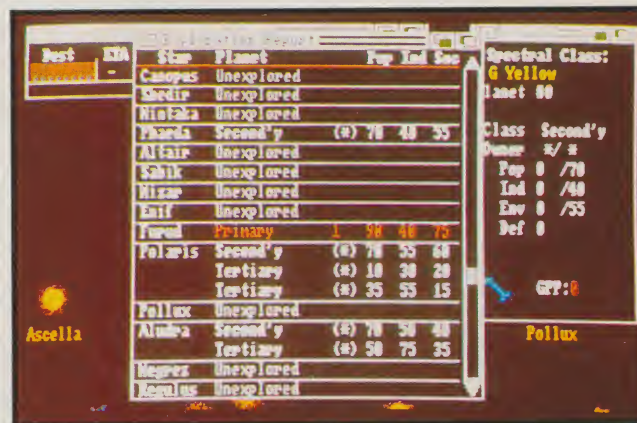
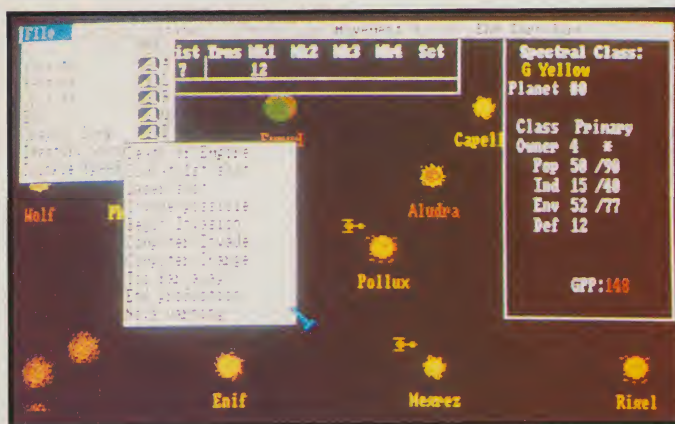
YA

PURPLE SATURN DAY

Title: **Purple Saturn Day**
 Supplier: **Infogrames**
 Mitre House
 Abbey Road
 Enfield
 Middx EN1 2RQ
 Price: **£24.95**



Graphics **20**
 Sound **17**
 Gameplay **17**
 Value **23**



■ **Intergalactic conquest is the name of the game.** Explore and conquer, divide and rule. Battling against three other would be megalomaniacs, you must discover the choicest parts of the galaxy and colonise them before your rivals.

their lips in anticipation.

Reach for the Stars is not a simple game. Despite the instruction booklet running to only (!) thirty pages, there is an awful lot to take in before you start mastering the multitude of star systems. However, user friendliness has

The game is for four players with the computer filling in any gaps. Each computer controlled opponent can be set to play at one of three different skill levels. There is an abundance of playing options that you can tweak to your heart's content as you become

REACH FOR THE STARS

Fed up with conquering the world, Gordon Hamlett attempts the mastery of space instead

Strategic Studies Group, an Australian software company have made something of a name for themselves over the past few months with a whole series of superbly produced wargames for eight bit machines. Now their first, and self confessed favourite game has been converted to the Amiga and anybody heavily into strategy games should be licking

always been one of the hallmarks of SSG and there is a step by step tutorial mode available as one of the options to give you at least a fighting chance of understanding why you are getting wiped off the face of the solar system.

As if that were not enough, you can also let the computer select what it considers to be the optimum strategy for you under any given set of circumstances. For example, it will suggest what materials and forces you ought to be producing or where you ought to be exploring first. If you agree with the choices (and at the beginning, you are in no position to argue) you can go ahead and let the computer make all the appropriate moves for you — there is no fiddling about having to do everything yourself. Other examples of user friendliness include a library of sounds that you will encounter and a variable control to let you adjust how much the stars twinkle in the background.

more and more familiar with the game, setting victory conditions, number of turns and the like.

Production is the key to game. You can only produce goods on every alternate turn and the more resource points (RPs) your mini-empire has provided you with, the better off you are likely to be. RPs are worked out according to a complex formula but what it comes down to is that the more populated centres you have, the better off you will be.

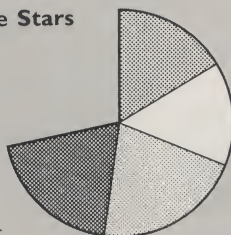
Naturally, this same idea has occurred to other players as well and there will frequently be struggles for control for a given territory. Combat comes in two forms, ship to ship and ship to planet. In the first alternative, a general rule of thumb is that he who has the most ships is likely to win — force of numbers will overcome force of weapons.

Assuming no overall annihilation of all the other forces, victory is decided according to how many victory points a player has accumulated during the course of the game. These points are awarded for developing colonies, conquering planets, starship battles and destruction of enemy colonies. There is the option to continue the game beyond the agreed number of turns should you desire to do so.

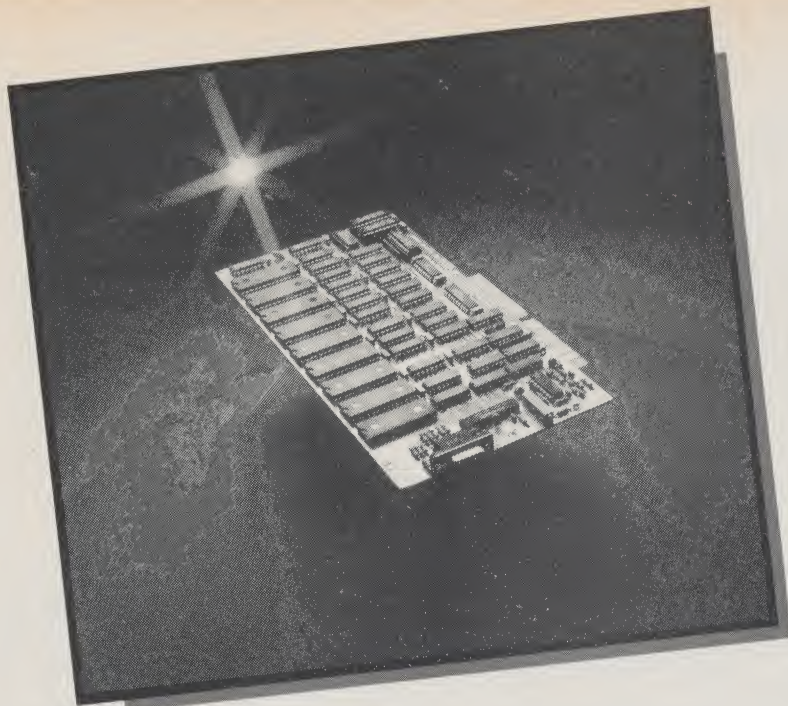
To sum up, *Reach for the Stars* is not a game for beginners. The many charts, tables and options take a lot of getting used to before you begin to feel comfortable with the game. That said though, strategy fans should find more than enough here to keep them quiet. Once you get involved with the game, it is difficult to see when you would stop playing it, even if it was only a couple of turns a night. **YA**

REACH FOR THE STARS

Title: **Reach for the Stars**
11-49 Station Road
Langley
Berks SL3 8YN
Authors: **SSG**
Suppliers:
Electronic Arts
Price: **£24.95**



Graphics 17
Sound 14
Gameplay 21
Value 20



Microway have the solution to interlace eyestrain but there is a price to pay. By Eric Doyle

Resolving The Problem

The Flicker Fixer is a component board which plugs into the video slot inside the A2000 and connects directly to a multisync monitor. This means that the normal Amiga monitor can be used at the same time, which as all very nice for Microway's demonstrations but has few serious applications!

In use, the screen image is rock steady and the increase in clarity is stunning. There are no compatibility problems with commercial software because the Fixer is invisible to the operating system and even HAM mode's 4096 colours are there in all their glory. Of course, if the software is designed to work with a board that also uses the video slot (such as a Genlock) you have a real problem.

The Fixer works by storing the first field of a screen in its on-board RAM. When the second field is scanned (the even lines) the Fixer adds an odd line from its memory store. At the same time it copies the new even line into its RAM. By the time the scan reaches the bottom of the field, the unit has refreshed all of the odd lines and stored a copy of the even fields. When the odd lines are scanned again the Fixer now adds the even lines and stores the odd ones again. The result is that each scan produces a full two fields instead of just one and the flicker once more reduces to a level which the eye can't detect.

To the user, this means that the high resolution screen can be used without the risk of headache, eyestrain or migraine, although the cost of the unit is fractionally less than £400, the benefits to professional users are immense because it really does make the Amiga look like a new machine (dare I say an improved MAC II?). Even with this extra charge, the A2000 plus Microway's Flicker Fix still compares favourably with other systems but the added benefits of the Amiga features should make it a strong competitor. For most people, this unit is a luxury which they can live without but if you frequently use CAD or DTP systems then you cannot afford to ignore the Flicker Fixer.

YA

Fixing the Flicker

■ Many graphics, CAD and DTP packages have an option to select the interlace mode. Select that option and the letters reduce in size while the screen flashes like a disco strobe light. A blinking nuisance and not very impressive but Microway's Flicker Fixer can change all that — at a price.

First of all, the Fixer can only be used with the A2000 and a high resolution monitor (not any of those produced by Commodore) so why did Commodore include interlace mode when it can't be effectively used with a standard set-up?

The A2000 is aimed at scientific and industrial applications, many of which already utilise high resolution monitors. To stand a chance of success in such a highly competitive field, the A2000 must offer the advantages of the Amiga system to the standard of picture quality already available. The problem is that meeting such a high standard would mean that the Amiga would cost about £300 more and a suitable monitor would be almost twice the price of the current models.

With an eye to commercial viability, CBM decided that although interlace mode would be available, it would not be cost effective to support it within the standard A2000 range. This has left a loophole in the market for Microway to take up where Commodore left off and that's how the Flicker Fixer was born.

What Is Interlacing?

Standard monitor displays consist of 625 lines of phosphor dots. The lines are scanned by an array of electron guns which stimulate the phosphor dots to emit light which the viewer perceives as the colour screen image. The way in which the lines are "scanned" by the electron guns means that the first line is traversed by the stream of electrons and then the gun skips back to the beginning of the next

row but one (line 3). This zig-zag path continues until line 625 is reached and the electron streams fly back to the top of the screen and scan the even lines. In this way each full screen consists of two fields, one field for the odd lines and another for the even ones.

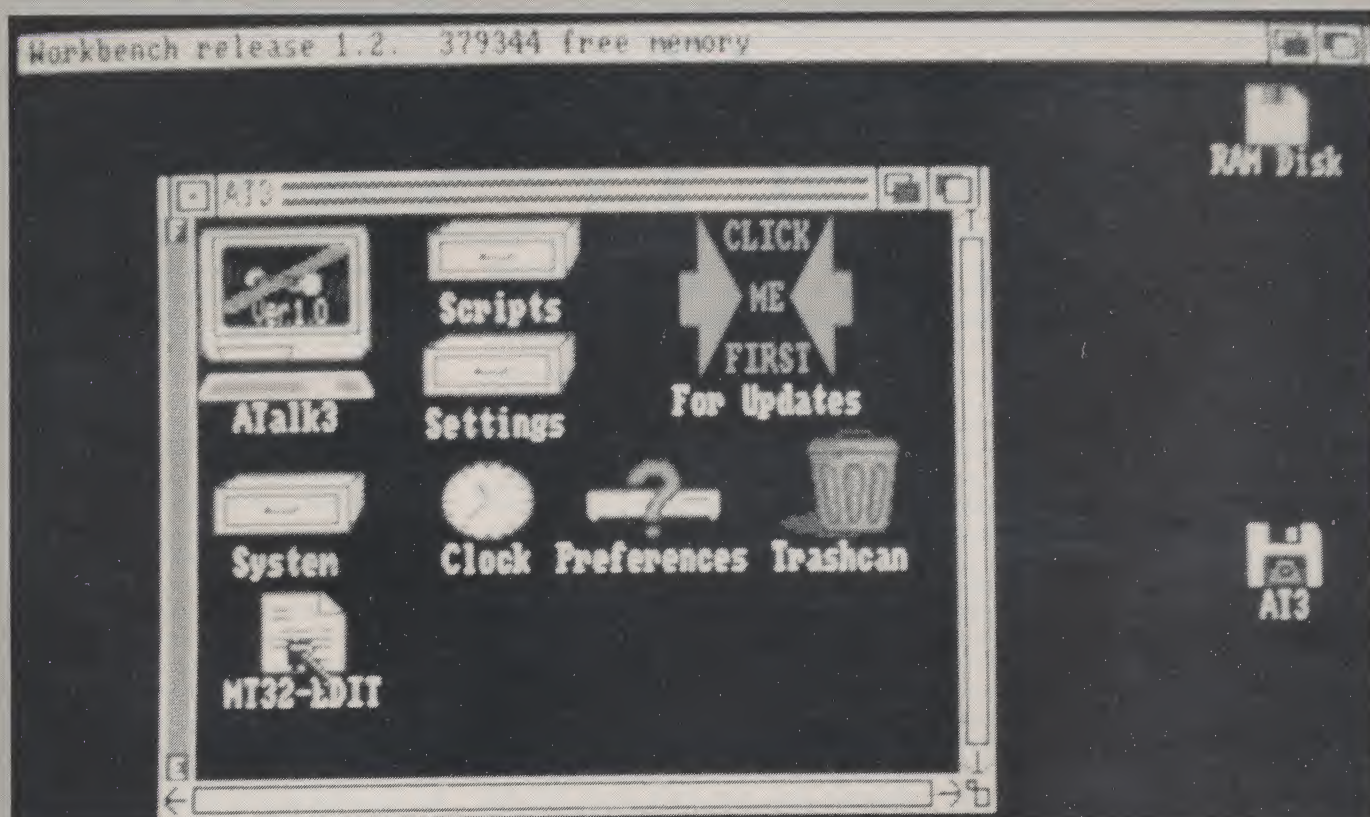
This scanning process takes time but is calculated so that the eye doesn't register the dimming of the first line before it is refreshed by the next pass of the electron barrage.

The higher resolution of a multiscreen monitor means that there are more lines to be scanned and the Amiga has to send out extra information. Now the first line isn't refreshed as quickly and the eye registers this as flicker.

There are several ways to reduce the flicker by turning down the contrast and brightness or by wearing polarised sunglasses but neither method solves the problem. High persistence monitors can help because the phosphor dots fade more slowly but fast moving images tend to cause "ghosting". Commodore have tried to solve the problem but I believe the new chip set only allows four of the 65 colours to be used. There must be a better way — could this be Microway?

Title: **Flicker Fixer**
Supplier: **Microway (Europe) Ltd**
32 High Street
Kingston-upon-Thames
Surrey KT1 1HL
Tel: **01-541 5466**
Price: **£396.75**

A-Talk



To load (even from WBI.3) takes A-Talk 3 an age — 'tis best to drop straight into the CLI than from the bitter excuse of a windowing system.

From the ashes of A-Talk and A-Talk Plus comes the more powerful third version. Karen Young plugs in and says "Hello World!"

■ One of the first communications packages I ever grew to really love was a package called A-Talk, a rather simple terminal

emulator supporting VT-100 and VT-52 modes of operation, an ANSI terminal option as well as supporting a simple TTY (teletype) option, which I immediately found ideal for logging onto services where you do not know their logon protocols.

That was nearly two and a half years ago! And my trusty old A-Talk disc was, until very recently, the only package I considered worthy of hooking up my proliferation of machines into the Amiga and, of course, the only package I considered communicating through my modem.

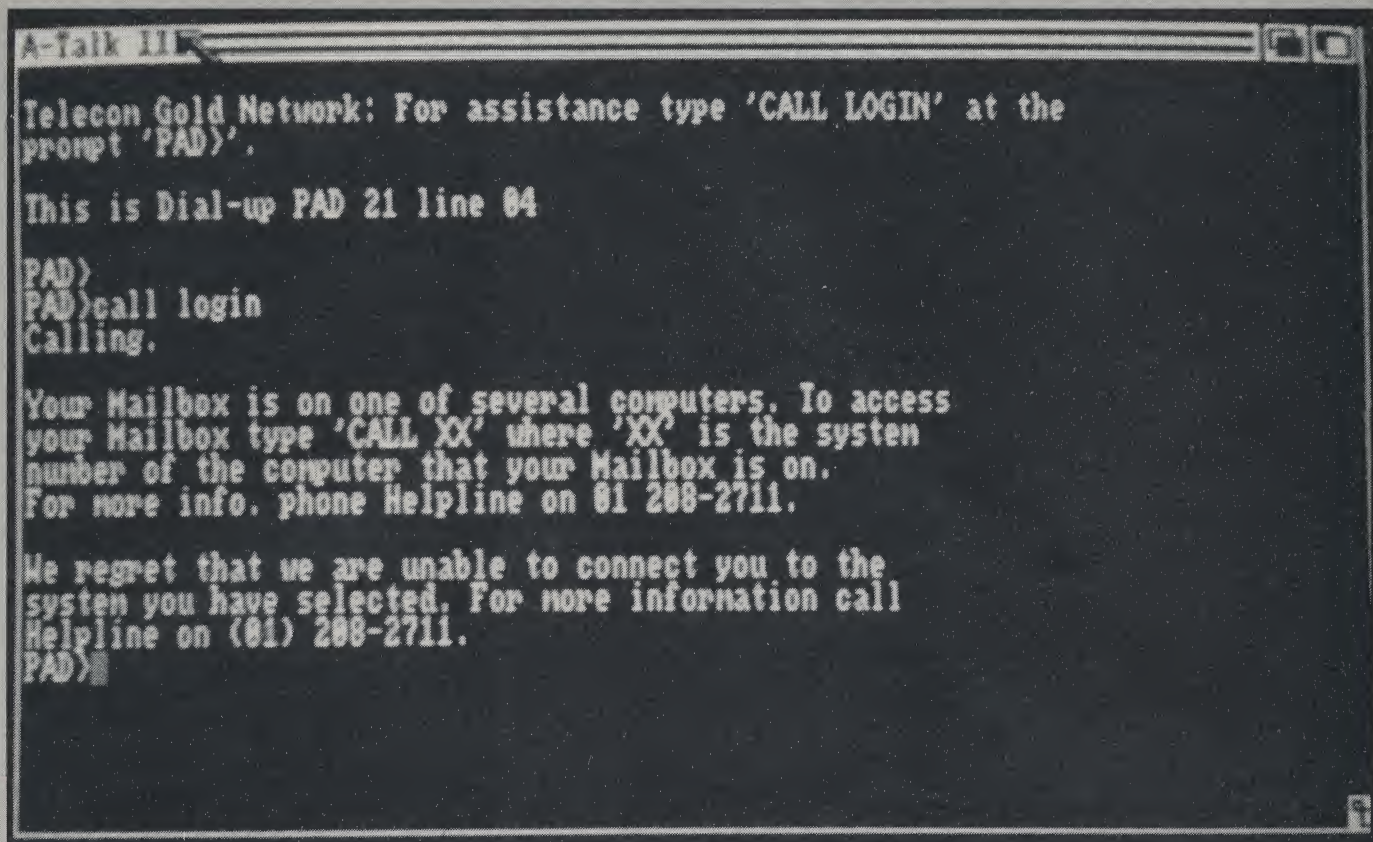
Serious Update

A-Talk III is a serious update to the original

package — quite a lot has changed since version one (did Oxxi — the software house pause for a version 2?). Some of the menu operations have been improved, a lot has been added to the menu options themselves, and the addition of two new terminal emulators has been added so as to make compatible with nearly all of the most popular world wide standards.

Under this new system, you will even be able to create a small VT-100 window by using the small fonts option (132 characters a line) and multi-task the machine so that you can perform one operation, while working on another.

Fonts have been improved dramatically since the last version — a VT-100 character set exists now, as well as the HI9 graphics fonts. The IBM PC ANSI (American National



Logging on to public database is easy with *Atalk 3*. Hacking starts here!

Standards Institute) fonts are here as well, offering a direct conversion, so you can now connect directly to an IBM Mainframe service without having to go through the expense of using a PAD for conversion or a protocol switching multiplexer. In addition to the ANSI codes, Oxix have, in their infinite wisdom, opted for 2,4 and 8 ANSI colour support within 24 and 48 lines.

The VT-100 emulator has been tried out with the trickiest editors, including EMACS (bundled with every Workbench Extras Disc) as well as less substantial editors such as Vi and EDT.

Of great interest is the Tektronix 4010 and 4014 emulator which uses the Amiga to a reasonable extent; for example, *A-Talk III* gives you the option to interlace the screen output (ideal if you want to squeeze every last pixel out of a high resolution monitor), as well as support the horizontal screen sizes from anywhere between 640 and 744 pixels — vertical resolution can be pushed up to 592 pixels if you are using the PAL equipped Amigas (European standard).

If, for instance you are logging onto wide carriage systems designed for printouts only, then you can make use of the Micro typefaces, but there are Small, Medium and Large Sizes to choose from as well.

A-Talk III can store screens in any of three popular formats, IFF, PLOT-10 and *Aegis Draw* — from there, you can convert to other packages using *Aegis Draw* or some file format converter, so images can be ported to just about any package really, providing you use a

conversion package like *Butcher*.

The latest popular Tektronix screens are resolution fixed at 1024 x 786 pixels and, although higher resolution displays are manufactured, the most popular models are above the resolution of the Amiga.

Not to worry though! Because *A-Talk III* can easily act as a window on the world, enabling you to automatically zoom or scroll about on the screen — a neat solution and one that has been used elsewhere on other machines — for example the Macintosh with its tiny screen.

The ALPHA modes are naturally supported, but of more interest is the fact that it not only supports GIN and GRAPH modes (where plot information is downloaded in a compact format and then recoded into sequences of plot codes at the other end of the terminal), but the enhanced plot, point and incremental plot modes are supported as well.

In line with the ESSA standards, the emulation package also supports VT640 escape sequences enabling universal compatibility with most up-to date terminal packages.

Protocol Conversions

Telephone lines are subject to an awful lot of noise and cracking on-line, certainly in my area, I have experienced some terrible on-line noise that has made it impossible to log on correctly — thus necessitating a quick call to the operator and *demanding* a data filter for an "a" grade quality link. To avoid the problems

associated with spurious line noise and the occasional crackle as one line discharges itself at the exchange, Oxix have included six protocols to make your life easier when transmitting or receiving a text or data file from another computer via the telephone or by null modem cable.

The first four Modem protocols are the traditional XModem and YModem variants including batch modes for transmission and saving of filenames, as well as the ZModem protocol (supported by many machines and public services these days).

The Kermit protocol has been included thus making it easier to transfer files from kermit-only sources (I have never really liked Kermit — there is often more error correcting data passed down the line than actual file data), so it is useful to have only as an option.

Kermit server mode is a variation on the Kermit theme except this time, you are the receiving station.

Kermit server mode only works if your host supports server mode, in which case you do not have to invoke the send receive commands on your host. All you have to do is type "SERVER" after the host prompt has been flashed up on the screen in order to drop you into server mode. After that, all commands are issued locally from your Amiga. Shutting down server mode can be issued by a FINISH command.

With all of the protocols, you can use either checksum or use CRC-16 and CRC-32 (Cyclic Redundancy Checking) to test the fidelity of your data.

Other Communications Features

The Amiga has a weird binary facility (in much the same way as MacBinary format files are filled with 128 bytes of crud at the beginning and end of every file) — so the Amiga has a similar problem. No worry though, because there is an auto chop option in one of the pull down menus that actually strips of all the surplus crud — especially useful if you are transmitting text files from, say the Amiga to a portable computer using XModem for very fast transfer speeds (for example 19200 baud).

For text files, there are excellent options for CR (carriage return) and LF (line feed) stripping/insertion, and for those who want to make sure data is never lost with two way transmissions X-ON and X-OFF are fully supported in all modes of terminal emulation.

The full rate of comms speeds are allowed so, you can take the Amiga down to 300 baud (now not as popular due to the low cost of 1200-1200 baud full duplex Modems), all the way up to 57,600 baud — (that's almost kilostream speed) which is, I think you will agree, pretty impressive for serial comms on a home micro!

Running at 57,600 baud is top whack for the Amiga's hardware although some minicomputers would be chugging over at these speeds (to put some things in perspective, imagine 32 parallel lines at 56,000 baud multiplexed on another 12 lines via a fibre-optic link if you want to know the state of the art in file transfer, in this case video images by satellite), and in the UK, you'll be lucky to be working at 2400-2400 full duplex it can be done — only if the PSTN (Public Switched Telephone Network) is willing — most people are working at 1200-1200 full duplex.

Logging On

A special script language has been included with this version of *A-Talk III* so that you can set up login files to put you into an automatic service such as BIX, CompuServe, Dialog and ARPANet (sorry, just joking about ARPANet) — there are some sample scripts for American databases which are a waste of time for British services, but it is easy enough to set up your own scripts for British services like Telecom Gold, Microlink, One- On-One etc.

For the programmers amongst you, the Script language supports commands that make it look like a mini-BASIC or a similar language — but dedicated to sending down telephone numbers and logon sequences.

Another language, but this time more standard is AREXX, the tiny version of REXX which is used to extend the capabilities of other programs used on the Amiga. AREXX is sold separately from Oxxi and is available from its creators and major distributors in the States.

AREXX is becoming more and more

popular in the States, but in the UK only a few companies interested in remote batch processing have latched onto REXX — AREXX has a log way to go in the UK, but at least it is a good standard which at least puts it on a good footing.

Essentially AREXX means remote control — I am writing this document on a portable computer in Oxford — should I want to send this to Stuart's Amiga in the office (with a suitably equipped auto answer Modem) running AREXX on *A-Talk III*, I could not only send this review off to him (well within the capabilities of any half decent Bulletin Board software package on the public domain), but I could also perform all sorts of CLI commands from my portable and examine various documents, even run a few text processing programs in order to make my Wordstar document compatible with his *WordPerfect* — think about the element of control I could have if I were to send a file using AREXX on my Amigas at home!

It would be possible to create a software device like the RAM disc (RAM: or RAD:) that effectively meant I could drag a file from a disc and send it automatically by dragging it to the device supported by AREXX — all possible, and no doubt someone will be doing it very soon.

In Use

Being reasonably *au fait* with *A-Talk Plus*, I feel that *A-Talk III* is a significant improvement on its three year old sibling, in fact, I haven't booted up my old *A-Talk Plus* disc since receiving the original package — I am still waiting on the AREXX module to come from America and when this becomes available in the UK, I will attempt to cover the subject of file transfer and remote control in some depth at a later date.

As far as file transfer is concerned, I was transferring at full speeds (57,600 baud full duplex) between my Amiga and my Macintosh using XModem CRC with no problems whatsoever — in fact, this file was transferred across to the Amiga using *A-Talk III* and the terminal software in my portable at 19,200 baud first time with no errors and still keeping the Wordstar internal format (as it should be).

As Videotex and Prestel formats have never really caught on in the States, split modes of operation are not possible, which is a shame, as the hacker's tools require a terminal package that can manually switch between different baud rates — for example, one university computer system had modified their PAD system so that access were only possible if you logged on at the Teletype speeds of 110 baud, followed by a command SET SPEED 1200 (or whatever). *A-Talk* cannot be taken down to 110 baud by software, so access to these systems is not possible — but if you needed access at 110 baud, the university would kit you out with 110/1200 baud Modems etc...

Also, as *A-Talk* cannot support Videotext formats, it effectively wipes out the European Amiga fraternity as an all-purpose comms

package — for example, Britain has Prestel, France has Teletel, Holland, Germany and Italy all have public information systems based on the Prestel protocols and I believe that French speaking Canada also uses the system (probably because French language software set up for public databases already exist).

But what *A-Talk III* does well is emulate, it has the widest repertoire of terminal emulation modules I have seen in a long time, only the BBC Micro (which is regarded by many to be a superior comms machine) has as many facilities, and then, *A-Talk III* seriously goes into overdrive with ANSI conversion, 4 and 8 colour modes).

The same facilities exist as before, Speech is implemented care of *TalkToy* — a utility that reads documents as text files as they come in, or go out — imagine the advantages that would bring the severely myopic! (TP I feel that the file transfer facilities are a little to thorough at times — for example, if you were to send two files by null Modem cables (RTS wired to CTS and TxD wired to RxD) using XModem as opposed to batch XModem, then when you click the file receive box a second time, you will automatically erase the file in question, and open it up again.

If you wanted to transfer a file followed by another one, you should press the [Clear] button after the previous file has been received and then type in the file name of the second file.

Fiddly, but I suppose you do get used to it in the end.

Oxxi recommend using a 1 Megabyte machine with this package — I found very little reason to justify this other than when using the 8 colour 132 column modes when file buffering got so small as to make the disc light whirring an almost constant feature — anyway, Amiga 1000s and Amiga 500s are fine with this package — the Amiga 2000 in the office (onto which this file was downloaded using) performed perfectly well.

At the higher baud rates, I noticed the screen having difficulty displaying and capturing text and data — especially the 56,000 baud rate, whereas the Mac was fast enough to display all of the text, the Amiga was losing badly and just trying to keep up — this shouldn't pose a problem when transferring files by XModem, but it does prove a point that some speed modes are best suited to file transfer only and not display.

I was most impressed with *A-Talk III*'s performance throughout the whole testing period. I cannot imagine people using a computer without using the RS232 interface, so if you need a comms package, but not for Prestel related services, then give this one a good look at, you'll be glad you did. **YA**

Title: **A-Talk III**
Supplier: **Oxxi Inc**
P.O. Box 90309
Long Beach
CA 90809-0309
USA
Tel: (213) 427 1227

■ Here is yet another game totally lacking in originality and with a story line that stretches credibility considerably.

You are Inspector Harry and your brief is to rid Manhattan of all its drug dealers, starting with caffeine rings and working your way up.

There is the usual mixture of thugs, racially stereotyped hoodlums and other villains that can be found in one hundred and one other beat-em-up games that have already been released. Thus you will meet bikers trying to run you over on their Harley-Davidsons, baseball bat wielding black guys, punks wielding bicycle chains, throwing knives and trying to dismember you with chainsaws. People in tenement blocks hurl bricks and flower pots at you.

Leather clad women come at you with whips (a really typical New York weapon this) and in Chinatown, you are informed that the people attempting to do you a mischief are Ninjas and Samurai no less. I can only suggest that the person who decided to include these oriental figures goes away and looks up in a dictionary what these names actually mean. There is a lovely typing error in the packaging that claims that the Samurai are invincible (sic). Presumably, this should read invincible in which case there is no point in fighting them but I

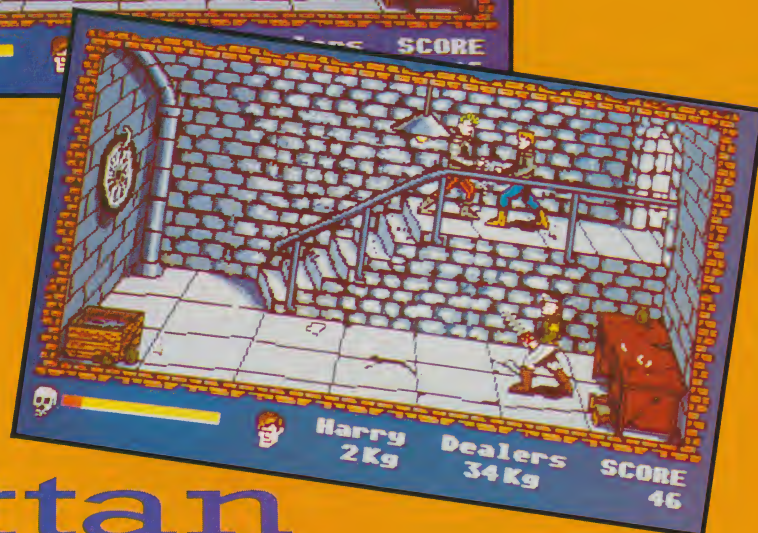
Manhattan Dealers



suppose they could be invisible as well to add to your problems.

Here we are in modern day New York and not a gun in sight. Can you believe it? And you, Inspector Harry have to go and attack these men using only your karate skills. This in the New York Police Department where the underlying philosophy seems to be one of shoot first and ask questions afterwards.

Imagine the thought processes. Oh dear, here is a man coming at me with a chain saw. I shall go and punch him on the nose. Not once, but four or five times because he keeps getting up. It will not matter if he hits me with the chain saw because instead of my arm falling off, my general health will decline but even that is not too bad because when I burn the drugs,



Gordon Hamlett stamps out drug dealers as well as kicking them, punching them ...

my health will get better again.

All this is a pity because the game looks very good with some nice atmospheric backgrounds. The animation too is well done and the programmers obviously know what they are doing. What they need is to employ the services of a decent games designer.

But oh! where is the originality? We have seen this type of game so many times before it doesn't bear thinking about. And with much better scenarios too.

YA

MANHATTAN DEALERS

Title: **Manhattan Dealers**
Supplier: **Silmarils**
Unit 4 Stannets,
Laindon North Trade Centre,
Basildon,
Essex SS15 6DJ
Tel: **0268 541126**
Price: **£24.95**



Graphics: 19
Sound: 14
Gameplay: 11
Value: 12

Elite

The classic BBC B game makes it on the Amiga, but how good is it — really? Karen Young has a look at Firebird's latest offering

■ We all remember *Elite* don't we?

Those wire frame graphics, crappy sound effects and rather jerky 3d animation routines that ran so well on the BBC B (and so poorly on the Commodore 64). Back then we all dropped our jaws when we saw the demo running on the Beeb's screen for the first time, and back then, we had quite justifiably good reasons to get excited about this game — at last there was a game that pushed the BBC B to its limits — a tremendous achievement in adding more colours than the BBC was capable of displaying, of offering a complete universe of 8 galaxies in less than 8K!

So anyway, a few years later, Firebird have decided to release the game for the Amiga — the archetypal wire frame graphics game should really have come home on this machine, with the success of *Starglider*, *Star Wars*, and other wire frame classics, that were undeniably spawned from the success of *Elite*, so what do Firebird do? They fill in the bloody wire frames and give us a solid body version of the game!

Now I am well aware of the other magazines wowing over the "wunnerful" 3d graphics and the groovy music and all the really wonderful things that Mr Micro have done to the game, but I think this a good a lesson in "if it aint bust don't fix it" theory and practice, or how more features don't necessarily make for a good game.

You see, *Elite* was an entirely playable

game for the BBC B, the Commodore 64 version was, in my opinion, ghastly and blocky because I felt they tried to add too much. For the 64 there was none of the feel of the original game and certainly the addition of those damned "trumbles" in the 64 version spoiled what was a perfectly good (if simple) space trading game!

So, on to the Amiga version, not really looking much different to the Atari ST version, this game has some nifty music (the *Blue Danube*) — very *2001 A Space Odyssey*, chaps! And the solid graphics of the rotating letters swiftly turning themselves into a demo, listing all of the foes in the game (well, almost all of them!) are all very nice and quite graphically impressive except, I reckon these 3D routines must be just about public domain by now — in fact, they're getting pretty boring now, and this isn't what I would consider using the machine to the full!

Although I must admit to liking the rotating ships as they fly off into the background and a new one flies back into view to replace the last ship I felt that the very essence of the game was far too pretty — lots of superfluous graphics (for example the edging around the side of the screen — an old trick to make the computer's drawing of the screen a mite easier).

Still, on to playing the game — don't attempt playing it with the mouse, it is about as cumbersome and as clumsy as using the old BBC Micro joysticks (remember those? I still have nightmares about them!) and game play via the joystick port is just as useless! No, opt for the old keyboard entry instead, you'll be surprised at how good the keyboard really is as a games player's input device, and *Elite* certainly starts to play like the old game I used to know.

Yep, all of the old galaxies are there, the old stars are there (with the exception of a few important ones Braben and Bell put in for a joke) and the overall "feel" of the galaxies remains the same — highly localized and in great turmoil, just what an interstellar trader rubs his hands with glee at!

Even a few of the missions are included — certainly the first two are there which bodes well for the rest of the game. But here we get to the crunch! The game has no "soul" to it! Yes it has all those wonderful graphics, but so much more could have been done with the game to make it more realistic, the launch sequence is boring, the trading system is pretty naff (long and drawn out with a mouse driven numeric key pad!) and very often it is hard to see what is a good bargain and what isn't!

So call me paranoid, but I reckon if Firebird had got Braben and Bell to code the 16 bit version of the game with 3d solid graphics, then this game would have been a whole lot better, but as it stands, there is no feeling to the game — the ships are in no way





as nasty as the 8 bit BBC B version — the “wolf pack” formations are no longer part of the game (where you fly into a whole pack of enemy craft bristling with guns that are more powerful than yours!) and the Thargoid invasion ships do not spit off Thargons, hence making them easier to kill, they pop up more in this game than a BBC B version with the cheat mode on!

Also, I may be wrong here, but in the BBC B version of the game, it is possible to fly into someone else's fight and get involved (or not — it all depends on your credit rating). In this game, the enemy are always firing at you. Not nearly as subtle a distinction and makes the whole situation more “us” versus “them”.

By making everything complicated by adding icons and pretty pictures, the game is really slowed down, especially when buying cargo and fitting your ship with bits and bobs to kick intergalactic ass — nope, I am sorry, but half the time I wasn't even sure what I was buying for my ship — I even attempted to buy a second escape pod for then ship when I really wanted a fuel scoop — thankfully there is a status line at the bottom of the screen that tells you what you have selected (I wonder why?), but it all takes time — whatever happened to the function key entry like that on the BBC B?

The actual space flight scenes are rather nice though, especially going into Hyper space — I have fallen prey to those damn Thargoids more than a couple of times, but unlike the BBC B version where you could, if you killed the Thargoid space ship, fly out of nil space,

I was left trapped in the cold nothingness waiting for the great Ctrl Amiga — Amiga to let me try again!

I even got a Thargoid on pulse lasers! Nope, I am not bullshitting, the way is to stop when they pull you out of Hyper space and wait for them to come to you, you are supposed to fire at them all the time and, if you give your lasers just enough time to cool off, then you can start again — it has to be perfectly timed, but then Thargoids eat *Your Amiga* readers for breakfast so I reckon you've got to be hard with the comeback.

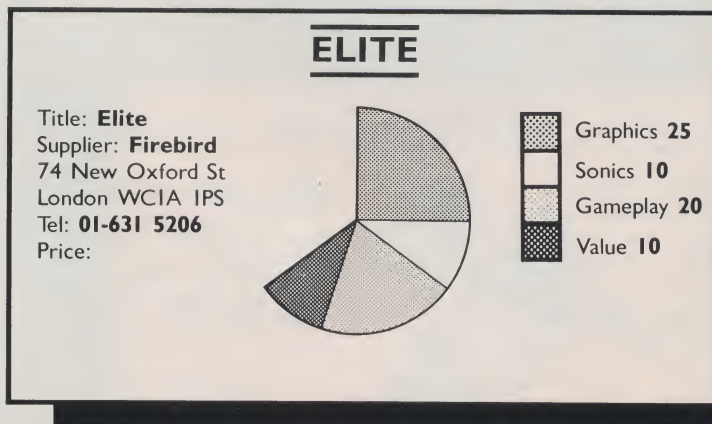
To conclude, I really didn't enjoy the game as much as I should have, it didn't feel like *Elite*

because it was all too pretty — with the BBC version the graphics were stark and added to the realism of the whole thing, but here we have all these colourful features that leave nothing to the imagination — sorry gang, I know most people would consider this the game of the year for the Amiga, but it was a let down — perhaps less hype next time *Firebird*!

Oh, and will you please stop converting these crappy Atari ST programs, I may have liked this game a bit more if you had at least made an effort to improve the facilities of the game.

Thank you and good night.

YA





Denaris

Banned, and yet it lives on, one of the lawsuit legends of our time, Katakis, is back with a vengeance

The name of the game this time round is *Denaris*, and everything you loved about the original has been preserved for your fire button finger.

For those not au fait with the history behind *Denaris*, a brief trip back to August 1988 would not go amiss.

Activision had announced the acquisition of the rights to produce a home computer version of the arcade coin-op, R-Type, and Rainbow Arts set out to beat them to it.

The result was *Katakis*, a horizontally scrolling, shoot 'em up where fast reactions

weren't fast enough, and an auto-fire joystick made the difference between dying immediately and dying later.

Activision was miffed on two accounts. Primarily, its official product was nowhere in sight, thus *Katakis* could take all the impact out of its release (and sales). As it later transpired, *Katakis* was miles better than any version of R-Type anyway.

And so the big bad lawyers barred their daily bread by holding a big stick over the head of US Gold (responsible for marketing *Katakis* here) and made ominous threatening noises. The men from Birmingham backed down and pulled the game. But they didn't give up.

Now after the Christmas buying spree, Activision has okayed a modified version of *Katakis*, renamed *Denaris*, and the whole world can party on down in carriage city.

Ready to rock? It's fly and die time, hotshot. After leading off a couple of easy attack waves, over the routine backdrop of a parallax scrolling starfield, you should be armed

with your nose.

I dare say there's some hi-tech description of what you fix to the front of your ship after running over the icon that brings it to the screen, but as far as I'm concerned it's a nose. To say having it is essential is an understatement. If you don't pick it up immediately you're gonna get creamed. The nose blocks incoming bullets and missiles you see.

Level two of the old *Katakis* has been modified to make it easier, and is now level one of *Denaris*. This means lovely metallic blue scenery (collision with which is fatal), incoming missiles from the roof, innocent looking alien drifting across your path spewing bullets, and a walker from *The Empire Strikes Back*, but on a much smaller scale, thankfully, stomping across the bottom.

Welcome to *Denaris* sunshine. The next collectable icon to appear fits your ship with diagonal lasers, which bounce around the screen accompanied by a metallic pinging sound. Jolly useful for taking our things coming in from above. This happens in at least three places between now and the end of the level so make sure you collect that icon.

Almost as important are the defence pods that can be fixed below and above your ship, which will stop a lot of the incoming fire, and suicide missions by reckless aliens. They don't make you invulnerable though, so you always have to be careful.

There's plenty of fast action attack waves, clever little traps, spikes falling from the ceiling and the like before you make it to the end of the first level, and an encounter with an alien whose size borders on the unholy. It also fires something akin to a plasma gun which goes straight through your nose like a writ through bank balances.

The tactic to use is to sit tight near the bottom of the screen and use the diagonal lasers to fend off assault, and gradually wear the beastie down. When it pulls away to the other side of the screen then you can get up and let it have it in the kisser.

Level two is where most of the changes have been wrought, as it features entirely new scenery, with horrible teeth like projections and narrow gaps to slide deftly through (or not), and some lightning fast demonic boomerang style aliens. The extra weapon to check out here is what I refer to as the splatter gun, which isn't essential for continued existence, but can be handy.

Wobbly bubbles, semi-invisible podules, unpleasant characters seated on fire-spitting space-motorbikes, and roaming mines are the jollies you've got to contend with before reaching level three, and the most R-Typey action of all.

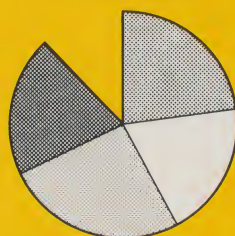
If anyone manages to get past the mechanised snake at the end of that level then they're doing pretty well 'cos it's got me beat at the moment.

Denaris has some decent music and sound effects, but where it really scores is in the graphics. The parallax scrolling, the tasty scenery, the incredibly smooth and fast sprites, and the continuous devastating destruction deliver an immensely satisfying joystick thrash. Forget R-Type, *Katakis* was fab, but *Denaris* is better.

YA

DENARIS

Title: *Denaris*
Supplier: US Gold,
Unit 2+3
Holford Way
Holford
Birmingham B6 7AX
Tel: 021-356 3388
Price: £24.95



Graphics: 23
Sound: 22
Playability: 23
Value: 20

■ Like most classic books, *20,000 Leagues Under the Sea* by Jules Verne is one of those titles that everybody has heard of but precious few have actually read. I can just about remember watching an old television series of the same name and if pressed, could probably have come up with the names of Captain Nemo and the *Nautilus* to go with the

than done. To start with, you have no idea where you set out from. Clues are vague in the extreme and those that are given are likely to be of little use to most players. Hands up all those who can immediately pinpoint the Solomon Islands. You have access to a map of the world and several numbered markers that you can move around at will as you make note

Gordon Hamlett discovers whether this latest French game sinks or swims

20,000 LEAGUES UNDER THE SEA

submarine theme but that is all. Now, a French software company, Coktel Vision have come up with a game to try and give some idea of what we have been missing.

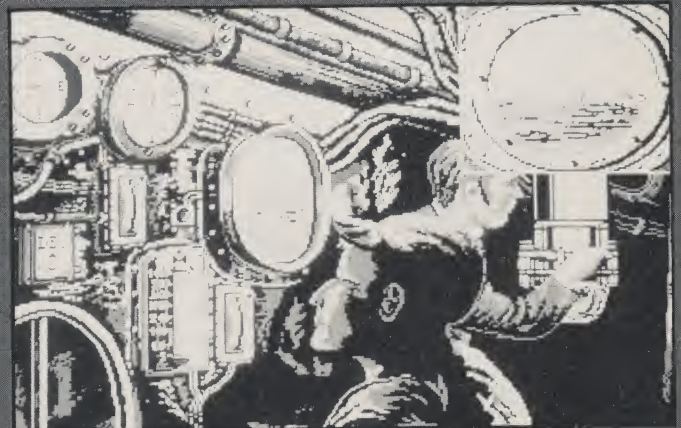
You play the part of Professor Arronax. Your original quest was to pursue sightings of some strange sea monster but en route, your ship, the *Abraham Lincoln* runs into trouble. Losing consciousness, you awake to find yourself aboard the *Nautilus*, an ornately decorated submarine together with your servant Conseil and a man of seemingly little brain but great

of each change of course.

The submarine consists of three locations, a living room, engine room and library. Here you study various gauges, read books, play the organ and even steer if the enigmatic Captain lets you. At various times, there might be islands to explore or underwater adventures when you are invited to don your diving suit and venture outside the ship. Remember to take your gun though as there are only a number of shark attacks that you can withstand before having to recuperate for several days

back in your cabin.

The plot is, of necessity, very linear in structure and this will put off some players. This is especially true as there is no save game facility, an unbelievable omission, which means that you have to start all over from the beginning every time that you play. Couple that with a somewhat tedious gameplay as you sit around waiting for something to happen and it could be fairly argued that an otherwise ingenious idea is let down somewhat by presentation. *YA*



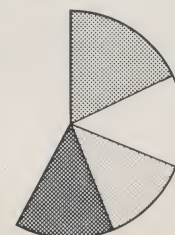
strength, Ned the harpoonist.

Here you meet the strange Captain Nemo, a man of strange moods and whims whom it is all too easy to cross. Keep in his good books and he will start passing on interesting bits of information and even let you have a go at running the submarine for yourself. Upset him though and you are summarily sent to your cabin for a few days.

The reason why this is bad news is that your task is to make a note of everything unusual that you come across on your voyage so that you convince the powers that be that you are telling the truth when you do eventually escape. You also have to work out your route as you travel and this is easier said

20,000 LEAGUES UNDER THE SEA

Title: **20,000 Leagues Under the Sea**
 Authors: **Coktel Vision**
 Suppliers: **Active Sales & Marketing**
 1 Renlagh Gardens
 London SW6
 Tel: **01-384 2701**
 Price: **£19.95**



Graphics: 18
Sound: 13
Gameplay: 14
Value: 13

Lattice C Version

Amanda Jones puts Lattice's latest offering through its paces

■ **Lattice Incorporated** has just released a major update of its AmigaDOS C Compiler package for the Amiga. Such upgrades are always of interest to existing Lattice users and this latest offering continues to show the very high level of customer support which Lattice provides. The new package provides improved ANSI compliance, contains numerous speed / code size enhancements, and can now generate code for the 68000, 68010, 68020, and 68030 processors as well as the 68881 and 68882 maths co-processor chips.

The new release, Version 5.0, is significant in many respects but perhaps the most important of these is that it is now clear that Lattice is aiming to attract the growing number of Amiga users who would like to enter the world of C programming. To this end the company has chosen to offer a complete development system which provides a fully integrated environment for the development of both C and assembler programs. Included in the package are two versions of the compiler, the Blink linker, the Lattice Screen Editor, a new source-level debugger, a global optimizer, a macro assembler, a disassembler, an applications profiler and even a header file compressor utility. Add to this the availability of up-to-date header files, the ability to write load-and-stay- resident code, and a substantial pre-written function library and the package becomes one of the most impressive Amiga packages seen to date. If all this were not enough, the complete set of *Lattice Compiler Companion* utilities are also included together with some additional new utility programs.

The *Lattice C Development System* consists of five disks and two manuals. The quality and presentation of the material provided is extremely good with the introductory user guide providing an overview of the capabilities and uses of the various components of the package. As usual a comparison of Lattice C and the original *Kernighan & Richie* definition is provided and this, together with a discussion of the overall *Lattice C* programming environment, serves to provide a fairly gentle introduction to the package. Each major module, each utility and every command is dealt with in detail and a separate section deals fully with the vast number of library routines that are now available.

A new user might find the sheer volume of material presented in the manuals a bit frightening so it's as well to bear in mind that these are essentially reference books — you



do not need to remember, nor understand, everything contained in the manuals in order to be able to write and compile C programs. Much of the information is given for the sake of completeness — remember software developers also use these products. The manuals do however contain a number of simple examples and these will help beginners find their footholds. Additional examples are also provided on the release disks.

Improved algorithms and additional assembly language coding have enabled the compiler's performance to be increased yet again and several new options now exist, e.g. a user can now vary the optimization emphasis towards either more compact code or faster execution speed. The compiler itself now exists in two forms with the **big** version providing additional facilities such as full macro expansion display, nest level counting and include file listing. Error handling has been generally enhanced and, amongst other things, it is now possible to control the compilers behaviour to various error conditions.

Several new keywords are now recognized including..... **signed**, **near**, **far**, **huge**, **chip**, **__regargs**, **__stdargs**, **__asm**, **__savesd**, and **__interrupt**. Perhaps the most important of these is the **chip** keyword because this now allows the programmer to ensure that the target object gets placed in the Amiga's chip memory. [On the Amiga it is necessary to place any data which will be accessed by the custom chips in the lower 512K of memory.] Changes needed to existing sources etc., are minor and if, for instance, you had an array of image data like this in a header file...

```
static USHORT GeneralGadgetImageData[] = {
0x0000,0x0000,0x0000,0x0000,0x0000,0x0000,0x0000,
0x7fff,0x7fff,0x7fff,0x7fff,0x7fff,0x7fff,0x7fff,
0x0000,0x0000,0x0000,0x0000,0x0000,0x0000,0x0000,
0x7fff,0x7fff,0x7fff,0x7fff,0x7fff,0x7fff,0x7fff,
0x0000,0x0000,0x0000,0x0000,0x0000,0x0000,0x0000,
0x7fff,0x7fff,0x7fff,0x7fff,0x7fff,0x7fff,0x7fff,
etc.
};
```

all you would need to do to direct it into chip memory is simply re-write the array definition like this.....

```
static USHORT chip GeneralGadgetImageData[] = {
0x0000,0x0000,0x0000,0x0000,0x0000,0x0000,0x0000,
0x7fff,0x7fff,0x7fff,0x7fff,0x7fff,0x7fff,0x7fff,
0x0000,0x0000,0x0000,0x0000,0x0000,0x0000,0x0000,
0x7fff,0x7fff,0x7fff,0x7fff,0x7fff,0x7fff,0x7fff,
0x0000,0x0000,0x0000,0x0000,0x0000,0x0000,0x0000,
0x7fff,0x7fff,0x7fff,0x7fff,0x7fff,0x7fff,0x7fff,
etc.
};
```

The Compiler Companion utilities are designed to enhance programmer productivity. That Lattice have decided to include this collection in the Compiler development package shows that they are intent on providing value for money. Here's a brief run down on the utilities included and their use:

CXREF is used to generate cross-reference listings of C language source files and produces tables showing definitions, functions, labels etc., and details about where they occur in the program.

EXTRACT and **BUILD** enable you to build batch command files. Together they are used to automate complex sets of commands and this usually reduces errors and saves you

lots of typing.

FILES is a file manipulation utility. It allows you to search for, copy and erase files and directories. It can handle nested directories and allows you to restrict searches to files with particular date stamp or size attributes. You can also use the utility to locate files when you are unsure of the complete name or of the file's directory location.

GREP (Global Regular Expression Search and Print) is a utility which searches a set of files for a specified character pattern and prints each line containing the expression matching the pattern. It is convenient to use and is very powerful but the syntax for the more advanced operations takes a while to get used to. Grep headers and functions are also included in the Compiler package so it's possible to use these search facilities within your own programs.

DIFF is a utility which lets you compare files and determine differences between them. When combined with the Build/Extract facilities it enables the automation of many types of file comparison operations.

WC takes a filename and will display the number of characters, words and lines in the file. It can compute a checksum based on the printable characters present and is often used to provide a rapid check as to whether two files are identical.

SPLAT is a line based editor similar to the AmigaDOS system editor **Edit** but is both more sophisticated and easier to use.

TOUCH adjusts the time and date stamp on specified files setting them to the current system time and date. Automated procedures which modify sets of files tend to use **Touch** directives to amend the time and date stamps of files which have undergone any processing.

LMK is a utility which is used to co-ordinate the maintenance of projects involving multiple files. It enables you to specify dependencies which exist between sets of files and then automate the operations involved with generating a software product. It is mainly useful in hard disk environments for 'on-going' projects but does have other uses.

Other Utilities

The development package includes some other utilities that are particularly interesting. A *Global Optimizer* is now available which can examine and eliminate unused code, can re-organize the assignment of register variables and can even look at calculations performed inside loops with a view to finding an improved code arrangement. The optimizer seeks to generally improve the performance of a program and has in fact been used by Lattice on their own library routines. Also provided are a traceback utility and an applications program code profiler. The profiler is a software tool that has enormous potential

benefits.... it enables you to analyse a program's operation in terms of its component routines and collect statistics concerning execution times etc. This enables you to fine-tune an application by identifying areas where algorithm and code changes would make significant improvements — when used properly it's a piece of software that's worth its weight in gold.

Like many of the other utilities provided in the development package the *Lattice Screen Editor (LSE)* was at one time a completely separate package. *LSE* is an integrated user programmable screen editor which offers multiple file editing, keyboard macros, search facilities and much more. *LSE* allows the compiler to be invoked directly and, because error information from the compiler is passed back to the *LSE*, this helps to speed up the overall edit/compile/link procedure. Lattice also include a fully fledged 680x0 macro assembler. To date I've only used the assembler a couple of times but it looks fine. One distinct advantage of having such tools available in a single package is that when and if you wish to become involved with 680x0 assembler, you will continue to work within the same familiar

development environment.

Last, but not least, comes the release and inclusion of Lattice's source level debugger, *CodeProbe*. This is a high power tool which allows users to monitor the execution of a C program. You can set breakpoints within the C source code, display the contents of variables and can examine your source code in both C and assembler form. I've been using *CodeProbe* for several weeks now and, bar a few problems of my own making that cropped up during the first few days of using it, I've not found any serious problems. Many programmers will not have had access to these types of source debuggers before and, as with all new tools, will probably find that it takes a while to get used to the facilities provided. The general opinion of colleagues who have seen the package to-date is that *CodeProbe* looks to be both a very clever and very useful piece of software. Being naturally pessimistic, and knowing that the provision of such a utility in the multi-tasking Amiga environment is quite a feat, I must admit that I'll be pleasantly surprised if a few 'teething problems' are not found as the debugger comes into general and varied use.

Conclusions

This latest offering from Lattice must rate as one of the most comprehensive and professional Amiga packages offered to date. I've not found a single thing about the package that I could pick fault with and perhaps the only cause for concern might have been that established Lattice users, i.e. those who have over the years purchased many of the utilities separately, would be envious of the material now offered in the 5.0 release. Luckily the upgrade path to existing Lattice users is well established and very competitively priced so existing users are unlikely to feel hard done by.

Perhaps the most important aspect of release 5.0 is the fact that it offers so much to the new user. The package provides a stable environment from a Company whose reputation is second to none. The beginner can learn about C within an environment which is identical to that used by many professional programmers and this is a long term advantage which should not be underestimated.

The C language and the Amiga have a very special relationship which extends deep into the design of the Amiga's software arrangements. You cannot seriously learn about the Amiga unless you are familiar with C and even proficient 680x0 assembly language programmers recognize the importance of the language to serious users. The reason is simple.... almost every manual and reference book concerning the Amiga will assume that you understand the basics of the language. Over the years there has been a lot of talk

about 'cheap C compilers' for the Amiga. To date there are no real signs of any such animal appearing and if by chance one did arrive it seems almost an impossibility that it would offer anything like the environment now provided by Lattice. Because of this I believe that the time has now come for the large number of potential Amiga programmers to ask themselves quite seriously how long they should wait before making a commitment to the C language. Every year that passes is a year's worth of experience lost and it is time that can never be recovered. The Lattice development package will retail at around £200, yet because of its contents it must rate as one of the best value for money packages currently available on the Amiga. It is a package that you buy once and by so doing enter the Lattice fold with all of the benefits which that entails.

The *Lattice C Development System 5.0* is not for the casual Amiga user. Having the development kit available will not automatically make you a C programmer — only you can do that. For this package to be of use you **must** therefore be either a serious user, or be someone who is prepared to work hard to understand the Amiga. If you fall into one of these categories, and if you do not already have compiler facilities, then this has got to be the package you go for. Lattice are not going to need to sell this one — it's going to sell itself and if you don't believe me just go into your local Amiga shop and ask to see it. Sit down for half an hour or so with manuals and just have a look at what is now on offer — then decide for yourself.

YA

Burghard-Henry Lehmann
expands on how to set up your
own disk to run from CLI

CLI

— One Step At a Time

■ In the last article on CLI I have explained how you can write your own startup-sequence and thus make a program (or several programs, for that matter) autorun after a disk has been booted. In this article I'd like to expand on the theme of the startup-sequence and how to make a disk of your own run from CLI.

Additional Startup Files

You might have noticed that when you boot a disk as described in the last two articles that CLI starts off in the 40 column mode. This is because the system hasn't been told otherwise!

On a Workbench disk everything is set up with the variables given from preferences. That includes the 80 column mode — if that is what you desire and what your monitor can display.

When you save preferences the variables contained in it are saved in the "system-configuration" file which you can find in the devs directory.

"Devs" is short for devices. This directory contains important device files, like the printer device file, the narrator device file and, last but not least, the system-configuration file.

The system-configuration file contains all the data you've given by setting the various gadgets in preferences, including colours, mouse speed, key repeat speed, line length and so on.

The printer set-up is saved in the "printer.device" file. Furthermore, if you list the "printers" directory under the "devs" directory you'll find a file for each of the printers which listed in preferences and which can at present be used with the Amiga without defining a special printer set-up.

To set up a disk with install and your own startup-sequence it is a good idea to make a "devs" directory on it and to copy all the device files into it which are important to you — including, of course, the system-

configuration file. Also make a printers directory and copy the file concerning the printer which you use under it. (If you are making this disk up for general use, it would of course be a good idea to copy all the printers files onto it!)

This configures this disk in your preferred way and it also allows you to use your printer. Because when you use prt: from CLI or the printer is activated from a program you are running (like for example Amiga Basic), the printer will only work if there is a devs directory on the system disk and this devs directory contains a printers.device file and the setup-file for your particular printer under the printers directory.

It may also be a good idea to copy preferences itself onto any disk you are setting up to run from CLI. This allows you to call up preferences with that disk and change the setup-variables contained in the devs directory.

Another important directory you might want to install on your disk is the l directory. This contains important system files, like the ram handler file which is necessary if you want to have have ram disk installed. Copy these files also onto your disk.

(K) Giving a Path

Now we come to a new CLI instruction: **path**.

This instruction tells CLI which directories to search when looking for a file to execute.

Here is an example which will explain what this is all about:

At the beginning of this series of articles I have advised all you people who only have the one inbuilt disk drive to copy the CLI commands onto the ram disk. This makes it possible to execute a CLI instruction from ram instead of the c directory of the Workbench disk. In this way you can give a CLI command without the system disk being in the drive.

But all this is only possible because the startup-sequence of every Workbench disk contains a path instruction which instructs CLI

to also look for a CLI command on the ram disk as well as under the c directory.

The full instruction as found in the startup-sequence is:

path: ram Without this instruction CLI would not be able to execute from the ram disk!

Addbuffers

Another CLI instruction which you might want to use in your startup-sequence is **addbuffers**.

This sets up additional buffer space for the disk drive within the computer. The advantage is that this can speed up your disk operations.

Here is why: Whenever a file is saved onto a disk or loaded from a disk, part of it is put into a buffer or **cache**, as it is also called. In a savings operation this makes it possible that one can go on using the computer while part of the file is still being saved. And in a loading operation it speeds up things if one wants to load the same file again. This is because part or all of the file — depending on the size of the buffer — is still in memory, meaning that it doesn't have to be loaded from disk again but only transferred from memory instead.

Of course, the larger the buffer or cache is, the more can be kept in it. The addbuffers instruction lets you enlarge the cache space by so many additional buffers and thus speed up disk operations.

But the disadvantage is that it ties up additional memory of the computer — no problem of course, if you are lucky enough to have the memory expansion, but it can be a problem for those of you who have only got the unexpanded Amiga 500, because, as you might have already found out, with the unexpanded computer you run quite quickly indeed into memory problems. 512 k would have been an awful lot of memory on a computer like the Commodore 64, but on the Amiga with its multitasking and memory hungry graphics.

YA

No Excuses

■ Will this one prove a sight for sore eyes? There seem to have been an awful lot of computer games in the past that have been played on a grid-like background. Even as far back as 1983 we had the likes of *Gridrunner* from Llamasoft and *Amidar* from Parker. The reason for this was that, back then, drawing lots of vertical and horizontal lines on the screen was easy for programmers and looked quite smooth as diagonal lines would have looked jagged.

So now we're in the wonderful world of 16-bit machines what have we got? Another



Those grid games are back to haunt us, much to the dismay of Kevin Crosby

grid game. Admittedly one that has been given a 3D perspective but the old ideas are still there. You assume the role of a little green monster (just for a change) who is sitting on this grid which, according to the manual is "...a fictional place that exists within our minds". Well I don't know about you, but there aren't any brightly coloured grids in my head. I can only suggest that the person who wrote the manual refrains from smoking that stuff in future!

Anyway, the grid is made up of various blocks which can be any of 16 types which range from sticky and slippery ones which slow up your progress, to those which give you extra lives or "impart special powers" upon you. So we have our scenario and the playing field, now we need to check out the bad guys. The villains of the piece are flying meanies which gradually swoop down and, eventually land on you, destroying your little green strider. It's up to you to scuttle round shooting the beasties before they siht on you (please don't lets have a typo there — KC (Sorry, chum — FF)).

Once they're all out of commission you can grab a key and weeble off to the next screen, or, as the manual puts it "...by purging the grid of these aliens and claiming the key to the unknown will you be able to live in peace with yourself". Heavy!

Not surprisingly the levels get progressively more tricky while the instructions get more and more pretentious. A full set of game controls are on offer consisting of mouse, joystick, and keyboard options. Presumably the latter has been included for the flock of BBC Micro owners who bought Amigas over Christmas (welcome aboard, guys). The only additional control is the spacebar which is your panic button if you're about to get zapped. All it does is pop a semi-circular force field (known for some reason as a panic pastie) over you, destroying the impending peril.

However, a rather nice construction set is also included. This includes starting points of the strider, the key, the number of aliens, the block layout and the frequency of bombs. All this can be playtested within the constructor and then saved for loading back in at a later date.

Not exactly a bad game, after all it is well put together, but it does leave a little to be desired in the originality stakes. These days it seems that software houses will try to push out any old obsolete game idea under a new disguise.

ya

NO EXCUSES

Title: **No Excuses**
Supplier: **Arcana**
2 Clare St
Bristol BS1 1XS
Avon
Tel: (0272) 297162



Graphics 6
Sonics 4
Gameplay 7
Value 8

Zoetrope

Will the plethora of Animation packages never end? Karen Young looks at Zoetrope, the latest in the running for the best all-singing, all-dancing animation system

■ I have had my eyes on this package for some time now, being a keen "BBer", demo versions of the screens created by Jim Kent — creator of *Zoetrope*, have been making their way across from the Californian Bulletin Boards, care of FIDOnet. These sizable demos have been occurring on some of the virus laden demo discs making their way into my Amiga, and every time, I have seen new graphical demos, I have seen more features being commented about or added on.

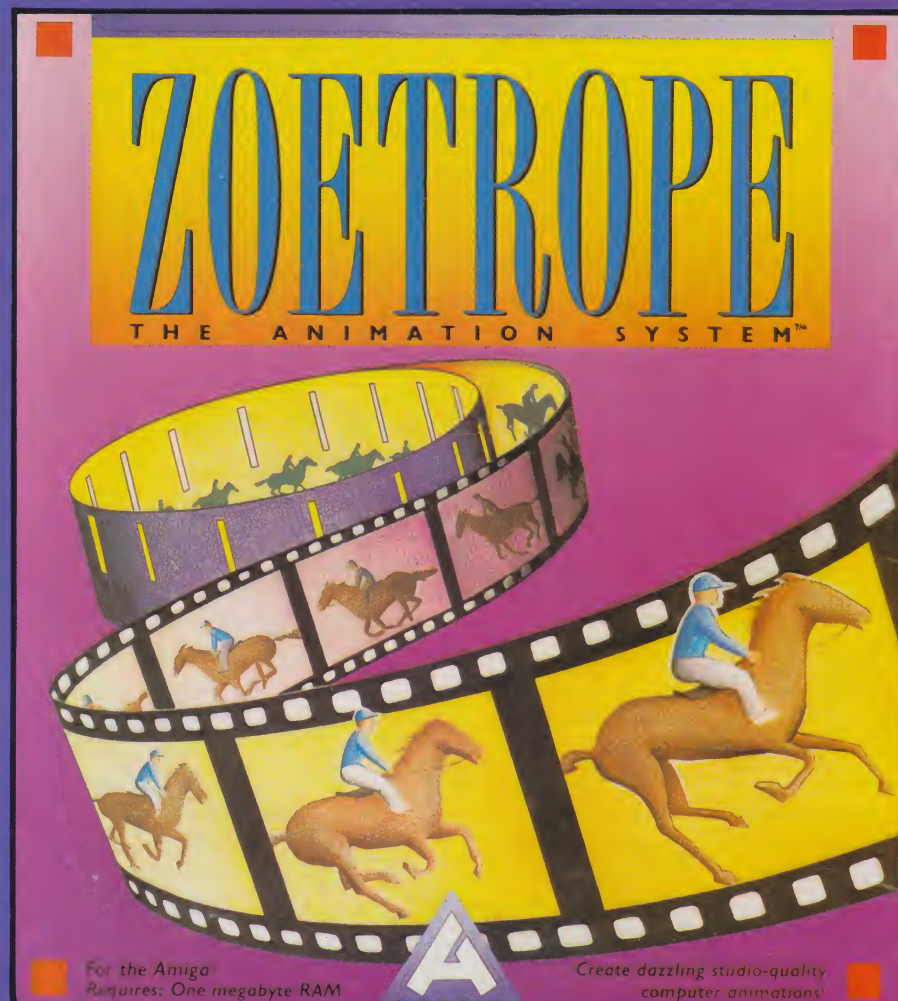
Zoetrope is now well and truly available in the UK, thanks to Antic Software, the Californian software house. Requiring a megabyte of RAM, this package weighs in as possibly the most advanced general purpose animation software package I have yet seen on the Amiga.

Yes, I know I have said this about the other 3D packages I have reviewed in the past (and I notice that Clive Grace's reviews have also followed this trend), but the fact is that 3D and animation packages have been improving rapidly since *Sculpt 3D* and all those early packages became available.

Bare Minimum

Zoetrope is a computer animation system for the Amiga with 1 megabyte of RAM (more about that later for Amiga 500 owners), it offers some pretty meaty functions — for example, even though it can be used as a simple stand-alone art package, it accepts a broad range of 3D graphics file formats, for example *Aegis 3D*, *Aegis Titler*, *Live!*, *Aegis Animator*, *Videoscape 3D*, *IFF*, and interestingly *Cyber Studio* and *Cyber Paint* — two packages for the Atari ST.

With *Zoetrope*, creating animated



sequences is quite easy, based on frames that are cut and pasted using a compositing system that enables "cels" (animators jargon meaning different layers of a scene made of celluloid) to be cut or pasted over each other, quite easily enabling images to overlaid or under laid giving the impression of depth.

Smooth animation is also a hot spot with this package, utilizing a system Jim calls "auto blueing", a system whereby a ghost image of the screen is printed in subsequent frames making the number of screen redraws as small as possible — I prefer to call it forward buffering, but what the heck! Jim Kent has decided to go away from the traditional tweening system and opt for his own solutions and why not invent his own jargon as well!

The Package

Zoetrope comes as two discs, the Main Disc and the Data Disc, and both can be backed up — which is, of course, the first thing you should do with any package of this importance. The programs can all be moved onto a hard disc drive, and you will be pleased to note that it will work very well with Workbench 1.3 and Kickstart 1.3 installed systems.

When you first enter *Zoetrope* You are greeted with a blank page; all of *Zoetrope* can be controlled by selecting either the function names in the menus and sub-menus, or they can be chosen by clicking on the icons in a window on the screen called the Play Back Bar — a further alternative is by pressing the letters of the keyboard using the Amiga keys — hooray! somebody has started using these again! Let's hope this will start up a revival eh kids?

To access the Play Back Bar, you simply press the right hand mouse button and hold it down.

As you call up the Play Back bar, you will be aware of 13 icons — some of these are copies of the actions in forward mode, but they generally contain Time, Load/Save, Pixel Fx, APM Fx, Colour Fx and Palette menus — the icons themselves are as follows:

[Up Arrow] Go to the first frame of the animation sequence. By clicking on the left button of the mouse, this will drop you straight into the first frame of the animation sequence. [left arrows] stands for Fast Reverse, which will play the animation in fast reverse (last frame to the first) speeds, whereas [left arrow] will simply play it back in normal time.

The strange symbol representing a line

through a bar and an up arrow represents the create previous new frame which will insert a copy of the last accessed frame in sequence — this has the added advantage of not only giving users the chance to spread out sequences to exact lengths (without adding any images — say, to a score).

The move frame backward icon lets you slow shuttle through an image on the screen, enabling you to look at what is happening on the screen one frame at a time.

The big bar in the middle is the frame counter bar, this numbered box indicates the frame at which your animation sequence is at. Its position within the bar corresponds to the frame which is actually being displayed — you can move to frames before and after the screen you are looking at by using the mouse to put you at any position relative to this number inside the bar!

The next five icons represent the first five as almost direct copies of fast forward, create frame next, forward play and last frame.

The penultimate box represents the total number of frames of your animation sequence. You may click within the Total Frames Box to append 10 frames at the end of the animation which will all be identical to the last frame.

The last icon, "F" indicates as to which mode you are in at the moment — this can be either FRAME mode, SEGMENT mode, or All toggle mode.

FRAME mode determines which frames will be affected by various Zoetrope Operations, they are set within the TIME sub menu. TO FRAME operations affect only the current frame. SEGMENT operations only affect those operations contained within the TIME sub menu, whereas TO ALL operations affect all of the frames in the entire animation.



sixteen colours are possible with the package, although they are capable of being pure grey shades as well

all of the most important general purpose commands that you are likely to issue.

Zoetrope Animation files are called RIF files, after an earlier Idea of Jim Kent's called the Delta File Format. There are five different types of file, and these are all described by their name suffixes, such as COL and WIN and PIC (which obviously stand for COLOUR WINDOW and PICTURE files). There are a great many demonstration files with this package, and there is an excellent demonstration tutorial section that takes you through a few of these demos, so they will not be just pretty demos to watch all day, you will be able to put them to some use!

For basic drawing facilities, Zoetrope acts just like any other 32 colour drawing package, the pull down menus that relate directly to the drawing aspect of the software are BRUSH and COLOUR menus.

The COLOUR menu (on the screen it is in American — Color), you are given a palette of 32 colours on the screen with a cycle

the same in Deluxe Paint 2), the colours you are given offer a wide range of cartoon style colours, but it is easy enough to create simple pastel shades.

For direct entry of colour codes, you can use the RGB input standard, where a number is assigned a figure from 0-0-0 for black to 15-15-15, enabling thousands of colour combinations to be made possible.

In addition to the colouring facilities, you can use the brushes supplied with the package or use some of your own — personally I still reckon there are few packages that are really ideal, so I end up either running more than one program in memory (say, *Deluxe Paint 2* and *DigiPaint* for subtle painting hues) and then port the file across into the main application. But if you do not already own an art package you are happy with, then I reckon you should be pleased with this one.

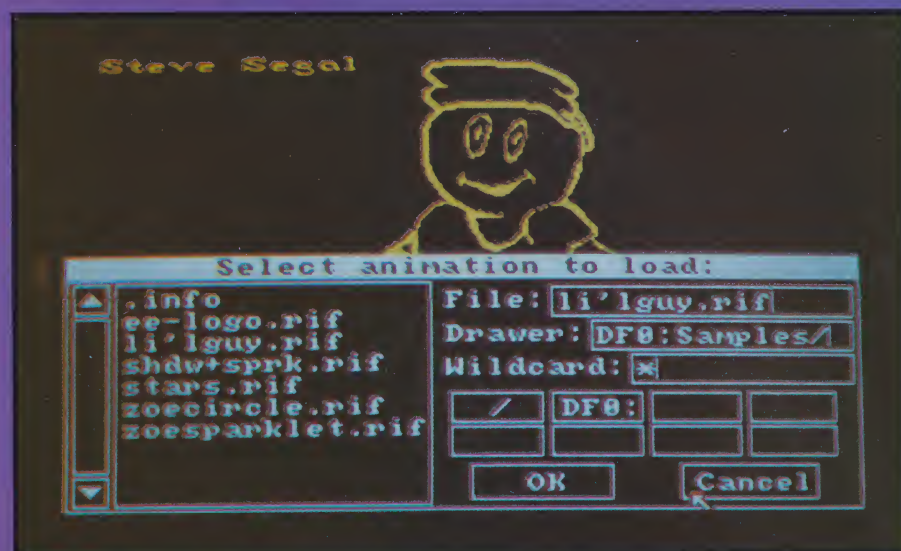
Text can be inserted into the package, it can be animated as well as bounced about all over the screen. The selections can be made from a number of fonts supplied with the system — or with the fonts as part of the workbench. There are a number of new fonts and any fonts you may have designed using the Fedit option in Workbench 1.3 can be utilized in this package — just be sure to ASSIGN FONTS: DFI: myfonts before trying to use fonts of your own.

Cut 'N Paste

Now we really start getting to the nitty gritty parts of the package: The CLIP menu.

Clip offers some very useful options I would have loved to have seen back in the early days of Animator 3D (for Sculpt 3D) and VideoScape, the rotate and invert options are fun, but of great interest is the stretch option — an option that enables you to mark any point on the screen and pull it out. Any animator will tell you that to create a natural walking or moving object called "sticks", you will have to stretch the sticks in order to make it look natural, either that, or make it look all jagged and rigid, the dinosaur example makes that all perfectly clear.

You can cut images and place them

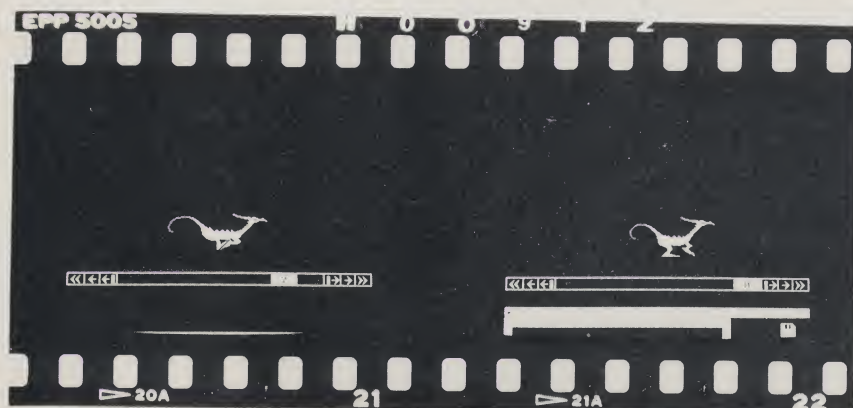
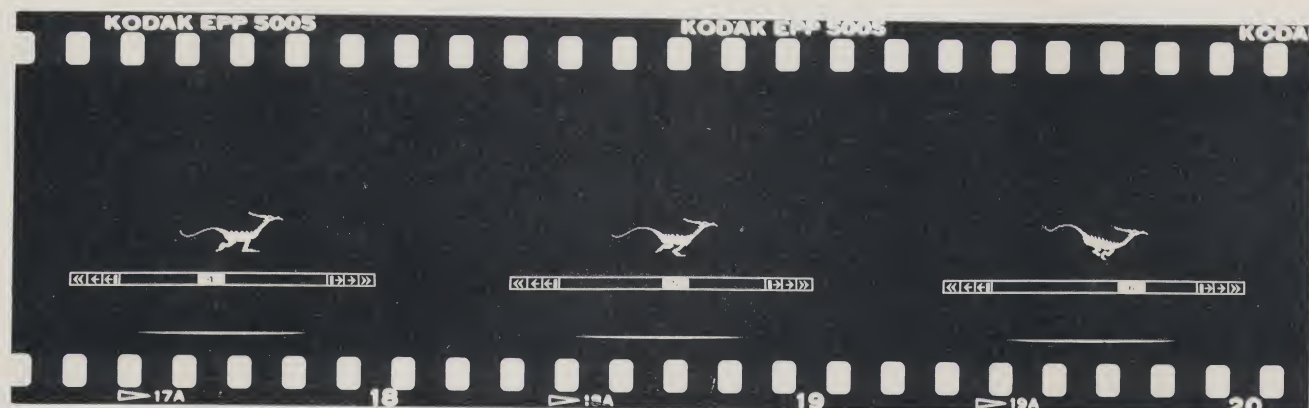
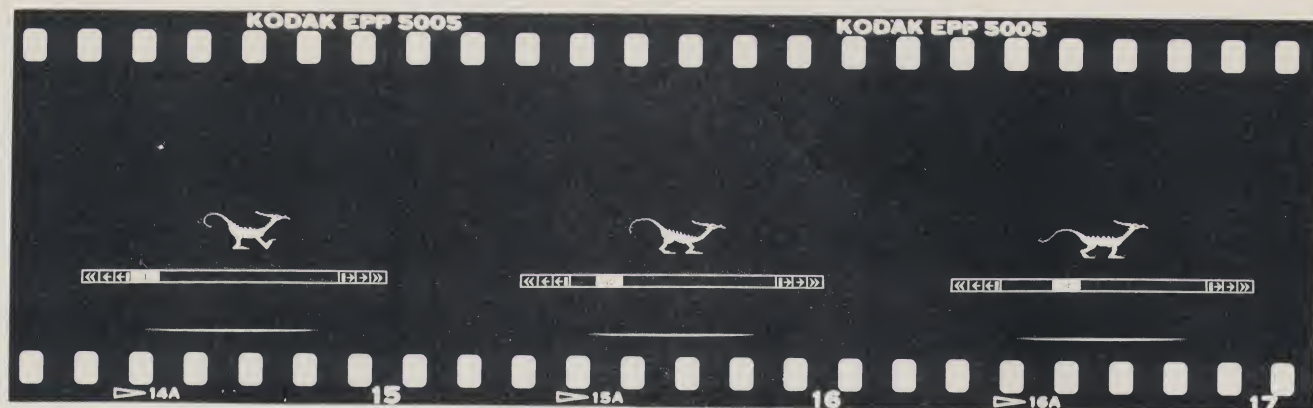


loading animation sequences from the initial startup of ANTIZOE

The Pull Down Menus

Of equal importance is the Main Menu, positioned just below the play bar, this contains

option, a colour palette register and a Colour Fx option, the colours can be placed in any order you like and these will also be affected when you choose the cycle option (much as



Dino running — note the traditional movements of the leg and the rubber banding of the arched back — in eight frames the movement is close to pro level animation.

anywhere on the screen, but you can also place them on other screens as well, and what's more, you can bulk copy backgrounds and individually move graphics around — for example, you can paste the backgrounds from the first screen to all the other consecutive screens, and then use the cels of the major pieces (say, in this case dino) to act over it, so dino could walk past a forest, or a street in Harlem, or anything really.

The FRAME menu is the last important option on the top of the screen, this option enables users to play with each frame as it appears on the screen, it offers the user to blue and "unblue" each frame (forward buffering), it offers the user the chance to freely flit from frame to frame (whoa — check out that alliteration... or is it an assonance?)

FRAME enables you to separate sections of the screen, thus making it possible for you

to change the perspective of an image (say, having our dino character walking "in" and "out" of leaves and flowers on a pathway, making the sense of depth much clearer and far more easier to create than with, say, *VideoScape*, making things history will place them on the screen as fixed objects or as blanked out objects to be forgotten about — if an image is on the screen and is to be discarded, you *Zoetrope* merely changes the colour of the image to act as the background colour, but it is still there! Animating something that appears to be invisible is stupid, so, the history option exists so that *Zoetrope* can forget about an image once it is killed or finished with.

Such a drastic operation does, however, have an "Unhistory" option, which will re-create the graphics item on the screen for you to undo anything too drastic.

Tweening

Tweening got its name from the early days of animated cartoons when a master animator (at MGM or Disney or whatever) would draw only the main (primary) positions of a character. The Artist would draw the character with his arm in one position, and then with his arm in another, this would then be passed down to the apprentice animator to draw the tweens, the screens between the two positions so that the artist could concentrate on other aspects of the film, such as timing and cel usage.

Zoetrope uses tweens in much the same way, you draw the major positions, and it creates the tweens for you by copying either all of the first image across for you, or selectively copying a range of pre-defined images across into each segment (when you choose the TO SEGMENT option as I mentioned earlier).

If you have seen the latest graphically brilliant hit game *Dragon's Lair*, you will notice that the fluidity of animation and multiple speeds of items on the screen, can only be achieved through creating images using tweens with fairly fast frame "interleaving" — thus it is possible to have one character run onto the screen at one speed and have the monster (or whatever) move at another, this is why the animation standard of *Dragon's Lair* is so superlative.

Needless to say *Zoetrope* can produce animation of the standard of the old Disney Films, the only thing that lets it down is the Amiga's screen resolution.... it's not high enough to really fool the punters, unless you

are really moving quickly and moving large objects around.

The APM

On the subject of moving objects around, the APM (Antic Pixel Mover) contains tools very similar to the professional work stations such as the *Mirage* and the *Quantel Paintbox*. Images can be enlarged, shrunk and rotated in multiple axes with easy to use from pull down menus.

This is clearly the most subtle part of the package, and I am still unsure how to get the most from it! Since it operates almost entirely from sliders and positional reference points.

APM is the secret of smooth animation, and although whole chunks of the screen can be animated using the cut and paste option from frame to frame, the APM works at very accurate levels, enabling users to create very subtle effects (especially with shadowing of colour) which are easy to access and quite easy to use.

The Other Packages

There are two extra packages bundled with *Zoetrope*, *Zoeplay* and *QuickRif*, both packages are used for displaying .RIF files.

Zoeplay is the easiest to use as it is simply an abbreviated Play back bar that fits onto the bottom of the screen. For the most part,

Zoeplay is the stand alone .rif file Play back system, but *QuickRif* offers a cheap and cheerful (but faster and jerkier) Play back system designed to work within the CLI. You can play files sequentially, so scenes written as different files can be played in order, for example:

Quickrif 1 title.rif 1 mainscene.rif 1 explode.rif 2 end.rif will play the title screen, the main scene, play an explosion screen twice and the play the end scene all in order, ready to be captured on the videotape player.

QuickRif is also available as source code, so that programmers wanting to display their images using custom built software can do so if they want to.

Converting from one file format to another is easy thanks to a couple of packages, one is called ANTIZOE and the other is CROPPER.

ANTIZOE converts Aegis Animator .script files to ZOETROPE .rif file formats, whereas CROPPER converts ANIM files (VideoScape 3D and Video Titler) as well as Cyber Paint .SEQ files and all non 300 x 200 mode files as proper .rif files.

Conclusions

Certainly without a doubt the animation features of this package are superlative and I haven't seen an animation package with so many good features, but if you were wondering where one was to put sound effects then

forget it! This package is as mute.

There are no facilities that I could find to create sound effects, no synching to music, no facilities to put choreographed music into your scores — nope, this package has left out a very important facility, Sound — the very life and breath of an animation sequence.

Other than that, *Zoetrope* is very good at doing what it does do — Animating images for you to create small scenes. For 1 Megabyte machines this is easy (and please try to get more than a megabyte if you are thinking of using this package for really ambitious sequences or longer pieces). 512K users cannot use the *Zoetrope* software as there isn't enough memory to hold the program and the stored screens and tweens, but it is possible to use the *Zoeplay* software for shorter scenes.

I liked the general operation of the software, the fact that it only took me a week or so to master the items (as opposed to the two months slogging away at *Animator 3D*, just because this package uses ray tracing for lighting effects) and the general smoothness of animation and the easy to create perspective system makes it really easy to generate scenes with depth and (I hope) subtlety.

A good package, but with the shameful omission of sound, I feel that whilst *Zoetrope* is better than everything else at graphics, sound effects must come along at a later date, in order to really clean up as the best animation package.

Nice dino too....

YA



Animation via the ANTIZOE program makes quite large characters easy to move around with a minimum of tweening.

Amikit

Having read this introduction to the Workbench and CLI for the Amiga, Stuart Cooke feels that he is a little nearer to knowing the answer to life, the universe...

■ The biggest problem facing any new Amiga owner is quite simply getting to grips with the machine. It seems as though many sections of the manual that accompany the computer have been written for somebody with a degree in computing, until now that is.

To some of you the above statement will appear a little unfair, no doubt you can load

On the bench

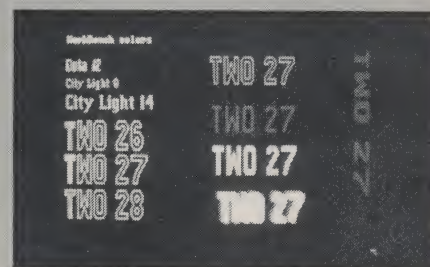
Chapter 3 is where you actually start to use your computer, the previous 2 being nothing more than an introduction to *Amikit*. The course assumes that you are completely new to the Amiga and that you have never used it before. To give you an idea of the knowledge needed to use this course here are the first two instructions:

1. Turn on the monitor.
2. Turn on the computer.

You can't get any simpler than that.

The user is slowly and clearly taken through booting up Workbench followed by a guided tour of features of the workbench environment, such as icons, drag bars and sizing gadgets. At each stage of the explanation you are encouraged to try using the workbench to see the relevant devices in action.

Before going any further and allowing you



to make changes to the disks supplied with *Amikit* you are taught how to copy the disks. Since there are three disks with the package then you will of course need three blank ones to copy every disk. *Amikit* stresses the importance of copying the disks and only using the backups, especially as the Amiga is notorious for destroying disks.

After copying and re-booting the system from the newly copied disks the user is taken through formatting disks, using the menu bar.

The chapter closes with an explanation of Preferences and how to use disks other than Workbench showing you how to open a drawer on one of the other disks in the *Amikit* package to play a game. After having all the information in this chapter pushed at you then you need a little light relief.

Talking Direct

The rest of the *Amikit* package carries on in the same format as Workbench, description with practical examples for you to carry out yourself. Now that you've learnt how to use the Workbench you are taken even further into the system and taught how to communicate with the computer via the keyboard and CLI.

Since *Amikit* uses 1.3 Workbench there are a number of features detailed that may seem a little strange to users of Workbench 1.2. For starters there is a program called *Shell*

and run programs on your Amiga without any problems at all. Unfortunately this is not always the case and the *Your Amiga* office receives a large number of telephone calls and letters on what may appear to some to be simple questions.

Amikit is a new package from the States that will take the new user through all of the intricacies of getting the most out of Workbench and using the CLI to its full.

Amikit is supplied as a 163 page manual and three disks, one disk is the latest version of Workbench (1.3) and the other two are work disks for you to use while going through the examples in the book.

It is recommended that you have two disks drives when using *Amikit* as it will save a lot of disk swapping, however, all of the examples assume that you have one drive so if you haven't got that second drive yet don't worry.



that behaves just like CLI but all of the commands are resident in memory so that it is much quicker to use.

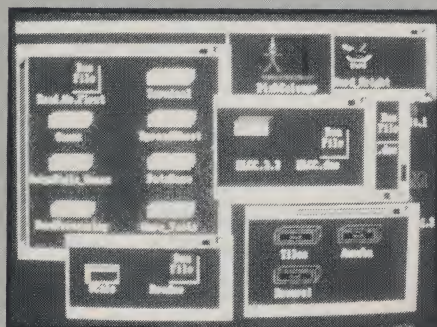
Amikit takes the user through the following subjects:

- Loading Workbench from CLI
- Quitting CLI
- Using the Shell
- Using Paths
- A discussion on all of the directories (s, C, prefs etc.)
- Use of many of the CLI commands.

One extremely nice feature of the *Amikit* course is the fact that the work disks have been designed for use with the course. For example when the **TYPE** command is discussed there is a file on the disks for you to type onto the screen. When you get to renaming file there is a sample file called NOTHING that you are shown how to rename as BlankFile.

Custom Amigas

By now you should be feeling fairly at home with your Amiga and you can really start being clever. After a brief description of ED, the line editor, you are shown how to modify various aspects of your Amiga system. One extremely handy modification shown is that of having a Shell window open for use as soon as you boot up the system.



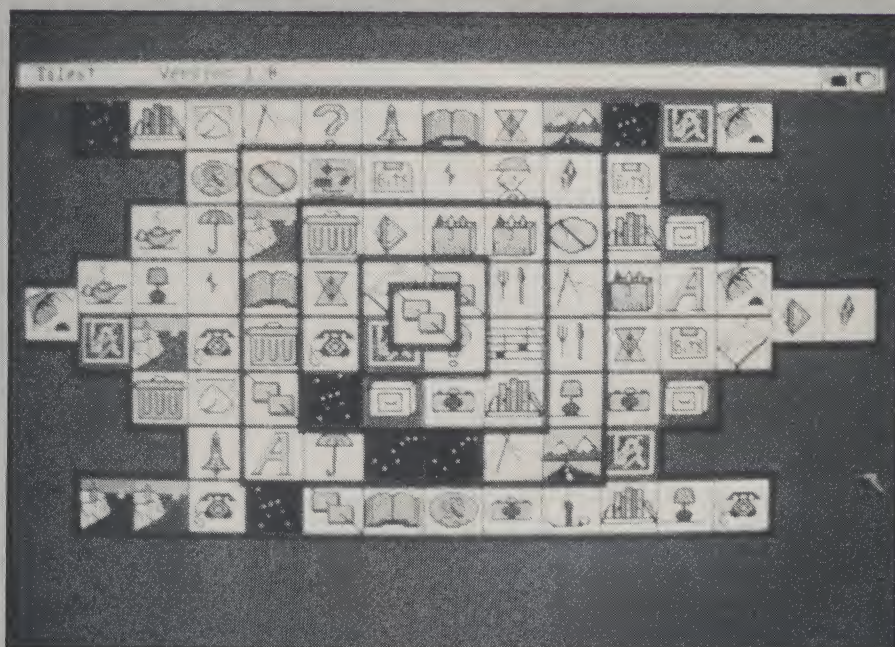
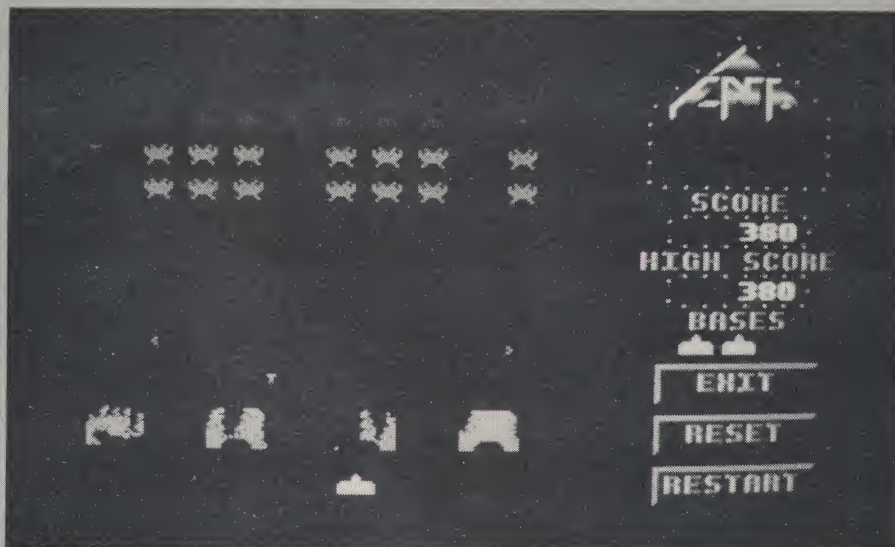
Added Extras

As well as guiding the user through using and understanding their Amiga computer better there is an extremely handy selection of Public Domain software for your use.

A telecommunications program, *COMMI.34*, is provided together with an explanation on accessing bulletin boards, sending files and so on. For those of you interested in letter writing an excellent wordprocessor is provided in the form of *Wordwright*. This is a full featured wordprocessor offering everything from headers and footers to the generation of automatic contents pages.

The presentation of the whole *Amikit* package is superb. There are only a couple of areas in the manual where I thought that there was a jump from a simple explanation to a more complex one without anything "in between".

Having disks provided in the package ready for you to use with the manual is an excellent idea and works very well.



I tried *Amikit* out on a couple of computer novices who had both used Amigas but were frightened of doing much more on it than loading games. In both cases they found *Amikit* clear and simple to follow and they certainly know a lot more about their computer than before they followed the course.

A first class package that should be one of the first purchases of any new Amiga owner. Don't bother with the manuals, use *Amikit*. You'll learn a lot more and have fun while doing it.



Footnote

Amikit is an American product and as yet we have been unable to find a UK distributor. Don't let this put you off purchasing it you can order directly from the US using a credit card. On the other hand if enough people ask for it in the UK then we may start to see it on sale in our local computer shops. *YA*

Title: **AMIKIT FOR THE AMIGA**
 Supplier: **Vega Technologies**
 San Ysidro
 CA 92073
 U.S.A.
 Tel: (619) 477-2024
 FAX: (619) 575-4861

Protext

Gordon Davis discovers that reviewing Arnor's latest Amiga offering is like meeting an old friend after many years

■ I never thought I'd run into this one again. Back in the old pure 8-bit days (excepting the QL of course — sneer!). I used to hack out most of my copy on an Amstrad CPC128. Of all the wordprocessors I came across, the one I came to adopt as my personal favourite was this — *Protext* from Arnor. Lo and behold, here it is again, reborn in 16-bit form.

Of course, it isn't quite the same. That which distinguished *Protext*, however, from other such programs still remains. It was always a dual-mode wordprocessor, offering both menu- and command-driven facilities, and this shows even more on the Amiga. The reasons for my liking *Protext* are clear enough — my background as a programmer means that I often feel happier in command-oriented environments. You may not.

Protext's menu-driven Edit Mode will be familiar to any Amiga wordprocessor user. The main text screen is simply written to, and pull-down menus across the top allow you to access the program's features. A hit on the Esc key, however, toggles the program into Command

Mode, and a separate CLI-type window opens below the edit one, into which you can punch a variety of commands, many of them far more flexible than those on the main menu.

Split personality

Most of these Command Mode functions duplicate those on the main menu, so you may say, what's the point? I'll come to that. In the mean time, one of the major problems of command-driven systems ought to be mentioned — they need enormous great manuals. Arnor's is actually quite short — it only looks like 150+ pages to me (the pages are sectioned, not numbered), but given the number of commands, codes and single-key edit functions, I'm not sure it's long enough. It's certainly no miracle of lucidity, but this is partly due to the fact that I was sent the version for the IBM PC — the Amiga manual isn't ready yet.

In fact to anyone used to *Scribble* or *Wordperfect*, *Protext* will seem like a nightmare at first glance. So is it worth considering? In my opinion, yes, because of one particular very powerful facility — macros.

A macro is any sequence of key presses defined by the user. *Protext* allows you to assign such a sequence to most of the keys on the machine, if necessary. This is a very

powerful option, because such a facility can be used in command mode to generate complex multiple sequences of replace commands, for example. Furthermore, a set of key macros can be saved to disk, so that you don't have to keep redefining them. Of course, such a facility isn't of use to everyone, but it could be a powerful tool in the hands, say, of a sub-editor who may need to vet other people's text and can set up a macro to search/replace common style errors.

Having said all that, I have to say that there are many features of *Protext* that impress me not one whit. The program comes in two versions, one for the A500 and one for the IM 2000. I was forced to load the A500 version. This version contains entirely non-functional menus which have been simply carried over from the full version — namely the spellchecker and utility menus. The A500 version can only be used with a standalone spell checker which comes on the first disk. This is sloppy, particularly since most users have A500s — the spurious options could easily have been removed. It also seems to be next to impossible to get on-screen help while in Edit Mode on the A500. Command Mode help is readily available, but the commands mentioned in the manual just do not function while editing. What Arnor needs to do is simply flag in the manual, those commands which are not A500 compatible. Unfortunately, from the additional Amiga copy they sent me, they appear to have no intention of doing this.

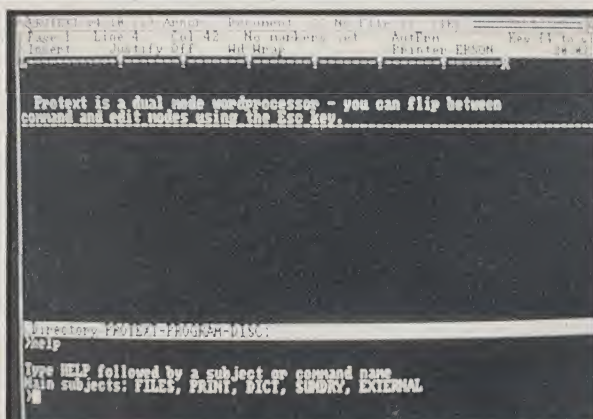
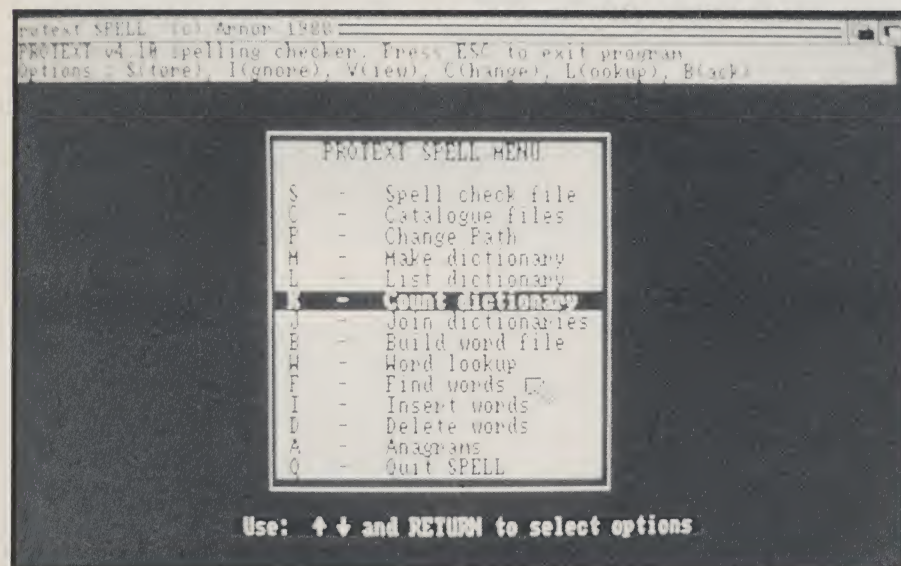
I also felt that the two modes didn't have the feeling of meshing very well — they felt like using two different programs really. One way of reducing the dual-mode clash would have been to allow the user to set up Command Mode lines by making Edit Mode menu selections.

Not too hard

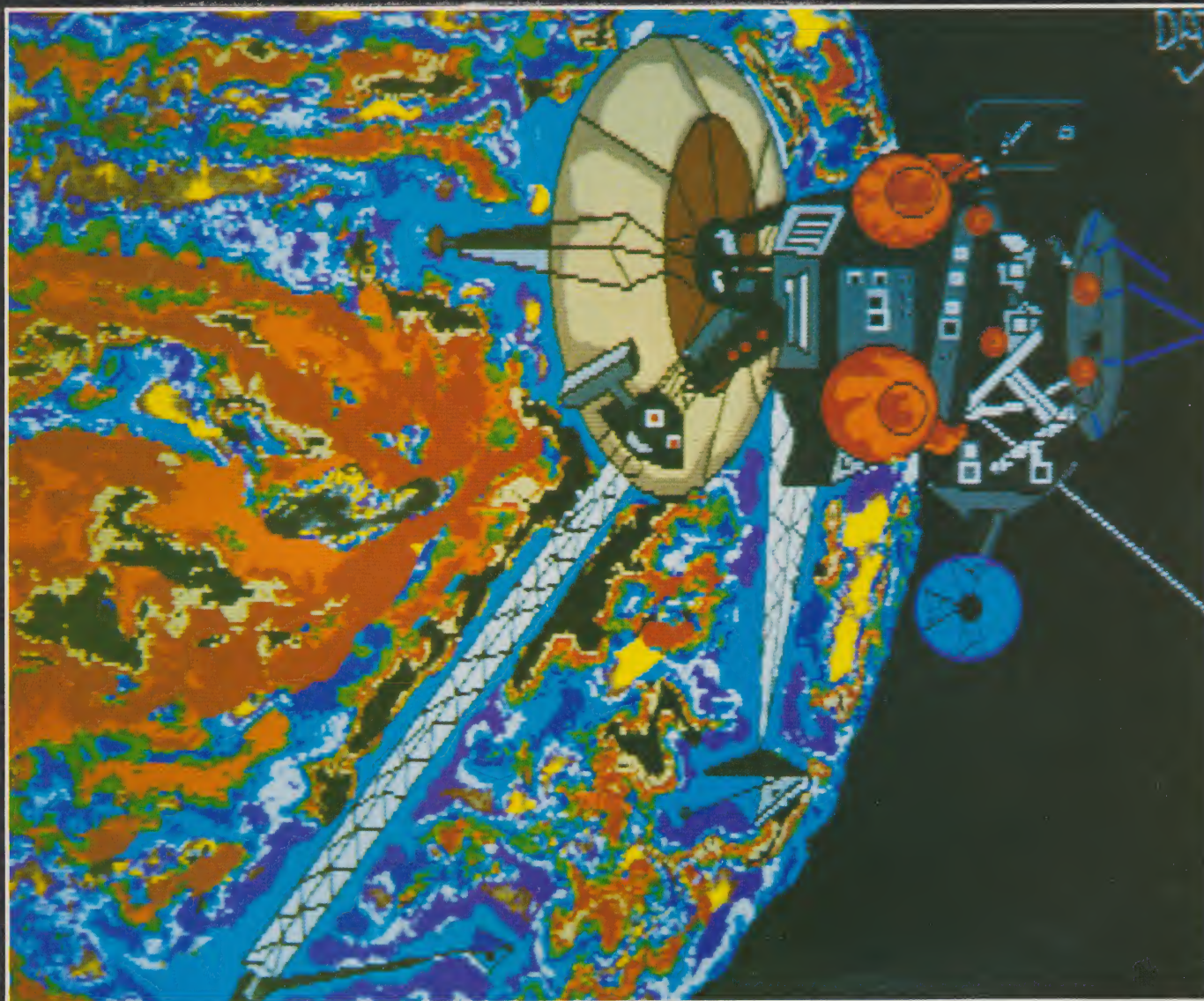
Nevertheless, within limits, *Protext* isn't too hard to use, provided you don't want to do anything too tricky. It does have a wysiwyg capability — bold, italics, underlining and so on all appear as they should, on-screen. It also allows for some fairly powerful printing commands, allowing you to set up variables which can be used as switches to turn on and off the printing of selected sections of text. Mailmerge facilities are also provided on the second disk. Even more wonderful to a frustrated *Wordperfect* user (who also happens to be a journalist), you can get a word count simply from the main menu. I knew I used to like this program for a good reason!

I was happy to encounter *Protext* again. I wish it well, but I have a feeling that many wordprocessor users go for ease of use before anything, judging from the number of Amiga users I know who use *Scribble*. Should you ever need to do some really powerful word-crunching, though, you could do worse than consider this one. I might even use it myself.

YA



Title: **Protext**
Suppliers: **Arnor**
611 Lincoln Road
Peterborough PE1 3HA
Tel: (0733) 68909



JUPITER. D. Jones, Ripon

So You Think You're An Artist

We all know that the Amiga has superb graphics facilities. If you're using them why not send us your pictures — we may even use them

■ *Your Amiga* quite often carries shots of Amiga graphic screens as front covers. This is a wonderful way of showing the World just what the Amiga is capable of graphically.

As you can see on this page we do have a couple of extremely talented artists who supply us with an unending amount of creative work for us to use. Well now it's your turn.

This issue of *Your Amiga* sees the start of the **Amiga Gallery**.

Every month we will be printing what we consider to be the best pictures sent to us in the Gallery pages. If there is a picture that we find really outstanding then we may even use it on the front cover.

Should your picture be used on the cover then we will not only pay you for it but we will also present you with a framed cover proof impress your friends/family with.

What To Do

Should you see yourself as the next budding *Your Amiga* artist then you should do the following:

- Put your superb Amiga picture file onto a 3.5 inch disk.
- Mark the disk clearly with your name, address, telephone number and the name of the picture that you want us to look at.
- Send it to:

Your Amiga
Amiga Gallery
1 Golden Square
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YA



SINGING IN THE RAIN
Dries Willy
Belgium



TOWER OF LONDON
Susan C Ingram
Reseda,
California



LADY
Mark Wooding,
Hemel Hempstead



OWL
Tony Stead, Royston

Calling All Authors

Would you like to share your knowledge of the Amiga computer with others? Have you written any software that you'd like to have published? Read on and find out what to do.

■ Even though *Your Amiga* has a number of regular contributors we are of course always looking for more.

You may have an intimate knowledge of the machine that you would like to share it with others, perhaps you've written a program that you think may be of some use to other readers of *Your Amiga*, or maybe you have an idea for a stunning series of articles. In fact if you have something that you think could be of use to other Amiga owners we want to hear about it.

Sending it in

Should you want to send something to us then please follow the guidelines below. Submissions that do not follow the guidelines mentioned may be automatically rejected.

Of course we don't expect everybody to be the next William Shakespeare but if you do follow the simple rules below it will make our job a lot easier.

■ All text and programs should be sent on a standard Amiga 3.5inch disk. Please state which wordprocessor that you have used. If you don't have a wordprocessor don't forget that you can always use the memopad supplied on your Workbench disk to enter the text.

■ Include the following information in all text files on the disk:

Name of article;
Special requirements (memory expansion etc.);
Your name;
Your address;
Your telephone number.

The above information should also be reproduced on the disk to ease identification.

■ If you have access to a printer please supply a printed copy of all relevant material.

■ Try and write in clear concise English. It does not have to be a work of art but it must be comprehensible.

■ Any program examples under 10 lines in length can be included within your text.

■ Should your article require artwork then supply clear examples of what is needed. We can get professional artists to produce the finished product. Try to suggest any ideas that you have for illustration, after all a picture's worth a thousand words.

■ Submissions of any length are welcome. If you have a five line routine you think may be of use to someone else it will be just as welcome as a full blown series.

■ Payment varies quite a lot and depends on quite a number of factors such as complexity of program, presentation etc.

■ All payments are made following publication of the article, usually around 2-3 weeks after publication date.

■ If we do find your submission suitable for publication in the magazine, we will inform you of our terms either in writing or by telephone.

■ If you want the program returned to you, should it be found unsuitable for use, then you must enclose a stamped, self addressed envelope for return of the disk.

■ Only items that you hold the rights for should be submitted.

■ We do not accept articles that have been sent to other magazines.

■ We do not accept unsolicited reviews.

■ All items sent to the magazine are done so with the understanding that they may be published in the magazine.

■ *Your Amiga* will not be held responsible for any loss/damage of items sent to the magazine.

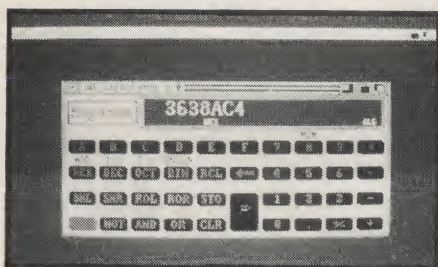
Computerised Yuppies

**Are you totally disorganised?
Are you always late for
meetings? If so then you are in
need of a computerised
mother in law. Stuart Cooke
takes a look at three
electronic nags.**

■ In these days of personal organisers, day planners, time management and performance charts it's hardly surprising that the computer is slowly being turned into an electronic mother-in-law. After all who is better placed to keep an eye on you — your computer is sat there on your desk watching over everything you do, be it write a letter, update a spreadsheet or make alterations to a database.

The Amiga is even more suitable than most computers for being turned into an electronic watchdog due to its multi-tasking capabilities and the fact that a realtime clock is installed as standard in the 200 series or can be added to a 1000 or 500.

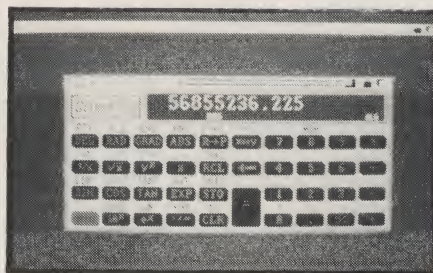
The multitasking capabilities of the Amiga means that your electronic organizer can be ticking away in the background while you use



Library caters to Programmers...

your computer for other things. As soon as the time is ripe to warn you of an impending meeting, or an important date the organiser jumps to the fore overriding everything else that you are doing and won't go away until you acknowledge that you're supposed to be doing something else. The perfect secretary? I wonder!

A number of 'electronic organiser' packages exist for the Commodore Amiga.



...scientists...

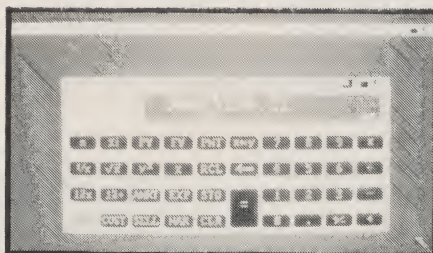
These range in both price and performance each offering different facilities. Three packages will be looked at in turn, *Wordperfect Library*, *Nag* and *Day to Day*.

Library

As you would expect from anything that carries the *Wordperfect* label this is an extremely professional package and is by far the most comprehensive of the packages being looked at.

Library is really a suite of six programs: Calculator, File Manager, Notebook, Program Editor and Print Manager.

As far as possible all of the programs 'feel' similar to the *WordPerfect* wordprocessor, the same keys being used to access similar functions. Although Library will work on its



...and accountants

own or with other software it is really at its happiest when running alongside the *Wordperfect* wordprocessor as many of the file formats are compatible with it and can be loaded into it for editing, printing etc. It is not necessary to have *Wordperfect* in order to print files as the Print Manager program is the same as the one used in *Wordperfect*. This is a stand alone program that allows you to specify a series of documents/files to be printed and then leave it chugging away quite happily in the background while you get on with something more useful than watching paper run through your printer.

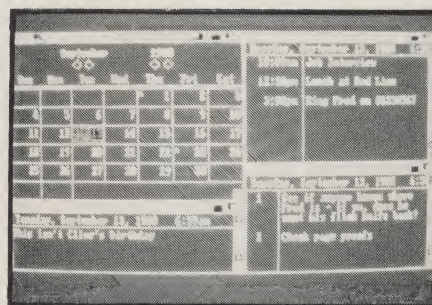
Calendar

Somehow the name calendar doesn't do this part of the *Wordperfect Library* justice. The so called Calendar is really more of an electronic scheduler or personal organiser that allows you to keep track of your time. It This is of course only a small selection of the facilities offered there is much more to play with.

Upon starting the program the user will be presented with four windows. These are a monthly calendar, Calendar, Memo Pad, Appointment List and To-Do list, the later three display information for the date that is currently highlighted on the monthly calendar. The date that is highlighted when you open up the calendar will be that as currently set up in preferences. If you don't have a real-time clock in your computer it would therefore be a good idea to set preferences as soon as you boot up your system.

Entering appointments into the system is extremely simple. You highlight the appointment window, select add appointment and enter the time and a comment. Once you have an appointment set you can set up the alarm options for that appointment.

If you are the type of person who has a number of regular spaced meetings in a day, lets take interviews for example, Calendar can set up a schedule for these meetings for you. Simply tell calendar the time of the first meeting, the time of the last meeting and the



Calendar: one small bug

length of the meetings. Calendar will now place the times of each possible meeting into the appointment list, you simply type the comments in as you fill your appointments. You can even set up a regular meeting each week, say at 9.30 on Monday morning for the next three months.

Library gives the user the option of setting calendars up for different people. A secretary could therefore have control of the

diary of the staff she works with. Now suppose a staff meeting has been called and the secretary needs to find out when everyone is free so that she can schedule the meeting. Calendar allows you to merge the files for each person. It will then detail all of the times that no-one has a previous appointment so that the meeting can take place — clever huh!

We all put off things that we don't really want to do and forget others, well Library won't let you. The To-Do list allows you to set up a list of items that need to be done each day. Each item is given a priority, the higher the priority the higher up in the to-do list the item appears. Once you have performed a task you can mark it as being done. Any unmarked items will be carried forward to the next day if you haven't done them — so be warned.

The memo pad is used for storing information about dates such as Birthdays etc.

The monthly calendar display will indicate any date that has an appointment, to-do list or memo attached to it.

Getting a printout of your electronic diary is very important, you can't carry your Amiga with you. The print option of the calendar allows you to print out Appointments, Memo's and the To-do list. You can print for today, a single day, a month or a year. The format of the printout, margins and so on can also be specified.

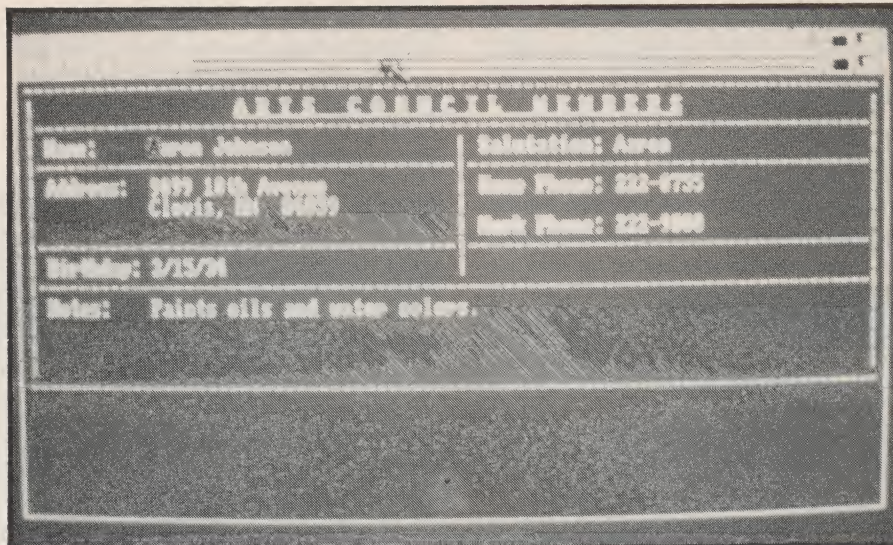
After prolonged use of the Library suite of programs the Calendar is the only one that caused me problems. I now use the Calendar every day to try and organise my time better, though it doesn't always work! Unfortunately I have to be very careful when using it to avoid what appears to be a nasty bug.

Next to the 'to front' and 'to back' gadgets on the calendar display is an extra gadget that when clicked alters the calendar so that it fills the whole display. Unfortunately when I click on this the display does grow to full size but when I try to get it back to normal size the Amiga crashes out to the famous GURU and I have to re-start the system. I have checked three versions of the *Wordperfect Library* program on four different Amiga computers and this fault exists on each one. I had a chance to try this out on a version of the program in the States and the program worked perfectly, no crash and no bug. Perhaps there is something wrong with the version on sale in the UK or that the fault is due to slight differences between US and European machines, whichever the bug should be fixed since no secretary would be able to rely on the program as it stands.

The obvious way to avoid this bug is not to click on the enlarge gadget, I can't see the point of it anyway. Unfortunately, since the position of this gadget is next to the 'to-front' and 'to-back' gadgets it is possible to click on it accidentally.

File Manager

From The title of this part of the *Wordperfect Library* you would probably assume that this was going to be some sort of database program well you'd be wrong. The Files that the program allows you to manage are any that



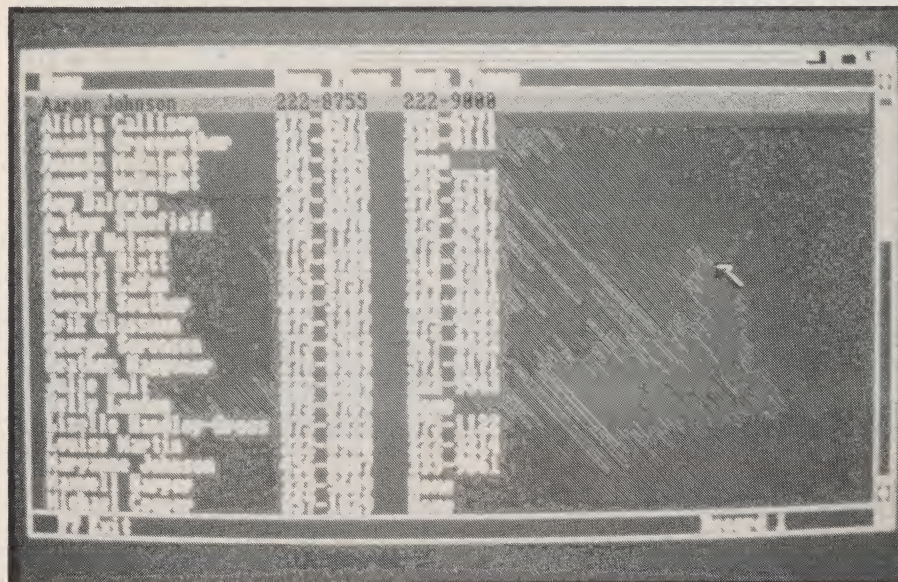
Note book: Editing, entry...

are present on any disk, these can be text, data, pictures, in fact any file that the Amiga allows you to store.

File Manager displays a list of the files on the currently selected disk and allows you to perform such tasks as deleting, renaming, and copying files without resorting to using DOS, or CLI. Once you have loaded the current disk directory into the File Manager you can manipulate it in a number of ways. Firstly you can sort the listing by size, date or in alphabetical order. Selecting a directory name will move you further in to the directory listing showing you the directory (drawer) that you have chosen. The ability to be able to create a new directory and then move programs into the directory is extremely useful — especially

occurrence of a specific string. This is great if like me you can never remember what file name you gave that thank you for the new sweater letter to your Aunty Edna. Set a Search for Edna and wait until the file is found.

Though this program works and is extremely handy to have there are better ones of the same type available. Two that spring straight to mind are the DU series of public domain programs, I think the latest is DU V. Diskmaster is the other title that springs to mind. If you were thinking of purchasing *Wordperfect Library* simply to get this program then I suggest that you look at the others first. They offer more facilities and the price, especially for DU V which is public domain is much cheaper.



...and printing out a list

if your disk directories are in as bad a state as my own.

A LOOK facility allows you to examine any file on screen, great for checking that really is the file that you want to delete before making a serious mistake. You are even given the option of searching through a file for the

Notebook

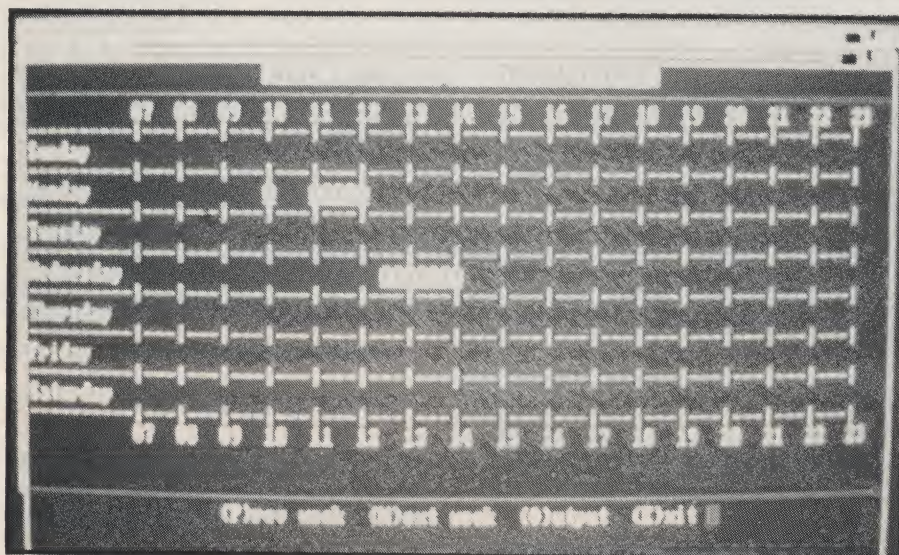
Once again the name is misleading, this is the database section of the suite, not a notepad at all. The program provides you with a way of setting up a sort of computerised card index system. For example you could set up an index

of names, addresses and telephone numbers. Options are available to use the files within *Wordperfect*, and even connect the computer to a modem so that it will auto dial any number that you require.

Notebook allows you to display your information in one of two ways, either as a columnar list of the data in the file or as individual cards the format of which you can

program editor and *Wordperfect*, thus if you use *Wordperfect* you will soon get to grips with the editor.

The editor gives facilities for appending text, cutting text, copying text, pasting text, changing the case of text as well as many others. Facilities exist for editing in HEX rather than straight text. Choosing this option opens up a new window displaying the text in hex



Day by Day: the most simplistic...

design yourself. This format can contain labels, lines, boxes and comment fields. You specify where new data is to be entered on the card and how long each entry can be.

The information that you can enter and manipulate with Notebook is just text, including numbers, unlike some other databases you can not manipulate numeric data.

Notebook allows you to search through any existing file for occurrences of specified strings. The search can take place on the whole file or just on marked records. Thus you could search for all of the addresses of friends who lived in, say, London and then narrow down the area down to those who lived in Camberwell.

If you have a number of specific items that you search for on a regular basis then you could set up a macro to automate the process for you. Once you have set up a macro time spent searching and sorting for specific data will be far less.

If you want to make use of the auto-dial option of the program then you will need to have a Hayes-Modem or compatible. Some other modems will work but the Hayes variety will give no problems.

Program Editor

For most people this section of the program will be the least used. Essentially it is designed for the entry and editing of program or text files. The program is not really suitable for use as a wordprocessor since it lacks many features that you would expect on the most basic program. If however you write programs then you will find the editor a dream, the *Wordperfect* Corporation even state that it is the editor that they use themselves — what better pedigree?

There are many similarities between the format — rather like a machine code monitor, this is great for placing control codes directly into strings etc.

There have been other collections of programs on sale, some offering very similar facilities to the *Wordperfect* suite, *Gizmoz* being a very popular example. *Wordperfect Library* doesn't come cheap and before you purchase it I would suggest you examine exactly what programs you require from it and see how the cost weighs up. You can't fault *Wordperfect* on the presentation, or performance of the programs (except for the bug in calendar) and I would have no hesitation in recommending them to anyone working in a professional environment and already using *Wordperfect*. If on the other hand you are simply looking for an organiser type program to use in a home environment your pocket may thank you for looking elsewhere.

Calculating

For those times when it's necessary to see if the accounts department really did get your last pay cheque correct or you need to see just how long it will take a can of coke to travel along the corridor of your commuter train when you drop it, a selection of three calculators is provided. Scientific, Financial and Programmers calculators are on offer, each one offers the normal everyday functions together with a repertoire of extra functions that suits the calculator's name.

Once you have selected the calculator of your choice a good graphic simulation of a calculator appears on screen, complete with little buttons to be pressed. All the calculators have the normal buttons found on a cheap calculator (=, etc.) the rest offering facilities to suit the calculator.

To use the calculator simply move the mouse to point at the function that you require and click on it. This may seem strange at first but you do get used to it very quickly. If you really feel that using the keys is necessary then you can use the numeric keypad for entering data and a number of the function keys to select often used commands. There is no keyboard short cut for selecting specialised operations, you must use the mouse for this.

All of the calculators offer various memories, a stack and can be used in either algebraic or reverse polish notation. Unfortunately there is no printing option so you will have to note down by hand the results of any calculations that you require.

Rather than go into detail on each of the calculators I feel that a selection of some of the commands available should whet your appetite.

Scientific

- Percent
- Trig functions (Sin, Cos, Inverse Cos etc.)
- Deg, Rad or Grad mode of operation
- Polar-Rectangular-Polar conversions.

Programmers

- Hex, Decimal, Octal, Binary
- Hi and Lo order display
- Logical AND, NOT, OR
- 1's complement
- 2's complement
- Arithmetic Shift Right
- Rotate Left

Financial

- Percent
- Interest Rate
- Percent of total
- Compound Interest

This is of course only a small selection of the facilities offered there is much more to play with.

If I was asked to pick a fault with the calculator then it would be the lack of a printing option. It is quite handy to be able to look back at a printed roll to check your calculations.

Day By Day

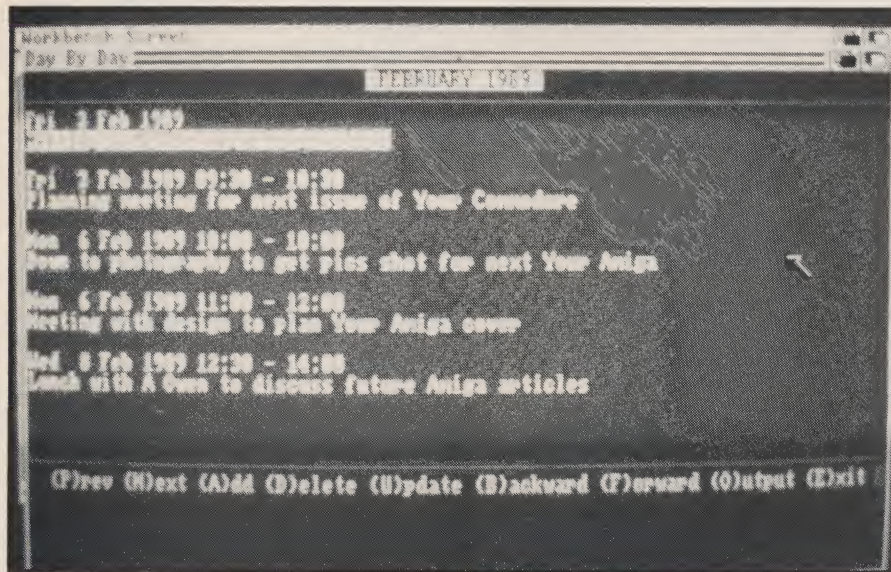
Should you require your Amiga to do nothing more than remind you of forthcoming events then *Day By Day* from Digita International may be more your cup of tea. This program is described by its authors as "a comprehensive life organiser suitable for business users, hobbyists, educationalists and home users."

Day by Day provides the user with similar facilities to that found in the Calendar section of the *WordPerfect Library*. The user has access to a calendar, diary and planner. Messages can be stored, to-do lists can be set up, you can be reminded of appointments and much more. From the spec that the program authors give it, if it could make tea then the office secretary could well be a thing of the past.

After the professional feel of the hefty

tome of the *WordPerfect Library* manual the one supplied by Digita is something of a let down, it's only 18 pages long and my first reaction was to think that the program couldn't be that good if all the necessary information could be crammed in such small space. Well the manual lived up to my

Messages left in *Day by Day* can be broken down into a number of different categories. If for example you were using the program in an office situation you could store each staff member's appointments as a different category. Categories can be added, deleted and renamed at will.



Day by Day: adding messages

expectations even if the program didn't. After a brief overview of the capabilities of the program the user is given a menu by menu description of the facilities the program offers and anyone who was not used to using the Amiga would be left out in the cold, there are no pictures showing what you should get on the screen and no examples for you to follow — it's all a case of suck it and see.

The program itself is not so much of a let down as the documentation. It is straightforward to use and should present no difficulties.

As soon as you boot the program then you are presented with a number of messages. These are:

- Urgent messages
- Overdue messages
- Messages for today
- Messages for the rest of the week.

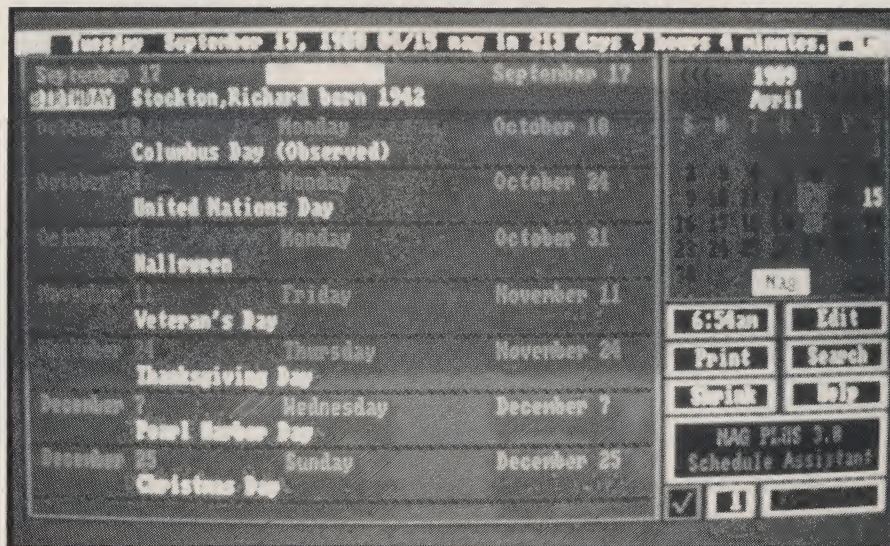
You are then given the option of scrolling through the messages, deleting messages, adding new messages, printing the messages, editing a message or simply exiting to the main menu of the program. If you wish to enter a message you will be prompted for the date and then the message itself, if more information is required then you will be automatically asked for it.

As you can probably see from the above description the message facility is where you would leave details about forthcoming appointments, birthdays, social events and so on. Then when you booted up your system each day you would be given the details of just what is coming your way.

Once you have made your way to the main menu then you will be able to examine forthcoming engagements, examine messages that are overdue or examine the messages for the rest of the week.

The Jump To Date option of the program allows the user to display all of the engagements for the specified date, handy for those socialites who are always being asked if they can make lunch next Wednesday.

Selecting the month planner gives at a glance a summary of engagements for the



Nag 3.0: extremely popular

current month. This gives no details of times or the message set for each day but it does allow you to see at a glance if something has been planned for each morning or afternoon.

Selection of the Weekly Planner offers a similar sort of display but this time for each day of the current week. Each day is broken down by time and you can see at a glance when you are occupied. Both this option and the monthly planner have the option of sending the output to the printer.

An options section of the main menu allows you to set up regular meetings, make

the program ask you for the length of meetings or get it to ask you if a message that you enter takes up a morning, afternoon, whole day or neither.

Day by Day is by far the most simplistic of the three programs that were examined however it does have its place in the market. If you are simply looking for something into which you can enter forthcoming meetings and engagements and examine, alter and print them out then this is the program for you. It may not have the bells and whistles of other programs but it does manage your information for you extremely well.

Nag Plus 3.0

The final package that we shall take a look at is *Nag Plus 3.0*. This program has grown from quite humble beginnings in the public domain into an extremely popular commercial program. *Nag Plus 2.0* has been around for a number of months and it was this that was to be mentioned as part of this collection. With the birth of 3.0 it was back to the Amiga and take a look at what's in store.

Nag 3.0 falls in between the two other programs that I have looked at. It doesn't come with all of the programs provided in Library but it does offer far more facilities than *Day To Day*.

Nag 3.0 certainly lives up to its name. As with the other programs the user can set up a series of appointments. Once the appointments have been set up — or loaded from disk — the user can use other software that will multitask. When it's time to be

reminded of a prior engagement a window appears on the screen reminding you that you shouldn't be at your keyboard but on your way somewhere else. Once you've acknowledged the nag by clicking on it you can continue with whatever you were doing before the nag took place.

Annoy the neighbours

One nice feature of *Nag 3.0* is the ability to have a sound accompany the nag on screen.

This sound can be composed of any IFF compatible sound file. On the nag disk are many sounds to be used including digitised phrases from Bogart, Three Stooges, HAL, Eastwood and many more. Should none of those take your fancy then you could of course have a fanfare or a drum role — whatever will your office mates think? Of course not everyone has time to glance at their computer screen to see what they are supposed to be doing so Nag 3.0 in its infinite wisdom even has the option of having the computer voice read your messages to you.

As well as keeping track of all your appointments, important dates and so on. Nag3.0 also has a To-Do list facility. As with Calendar in the Library suite the To-Dos you don't do today will be there in the To-Do list tomorrow — so get yourself organised cause they won't go away.

The Nag 3.0 display is clear and easy to follow. The main display gives you Today's date, the time, the time until the next nag (appointment reminder) A list of today's meetings/items to action, information for following days (dependent upon information on the screen) and a calendar.

This means that you can have detailed descriptions for each Nag. If for example you had to call someone at 9.30 on Monday morning you could have the telephone number of the person as part of the nag, saving you having to look in your address book for it. What's even better you could even get Nag 3.0 to dial the number for you, but more of this later.

The Search option of the program will provide the user with two lists. You can get a list of all appointments that contain the same word such as 'lunch' or you can get a list of all nags that have been missed.

The manual accompanying the program suggests that if you have more than one persons appointments stored in Nag 3.0 then you should precede a persons appointments with their name. When you want a list of their appointments it is a simple matter to search for a persons name in order to retrieve their data.

At some stage of the proceedings you are going to require a hard copy of the data stored in Nag 3.0. Two print options are available: you can print out information for every day or you can get Nag 3.0 to search for appointments

requires a Hayes compatible modem that operates at 300 baud. Care must be taken when entering numbers into a Nag since you can't use spaces in it if you intend to use the dealer at any time.

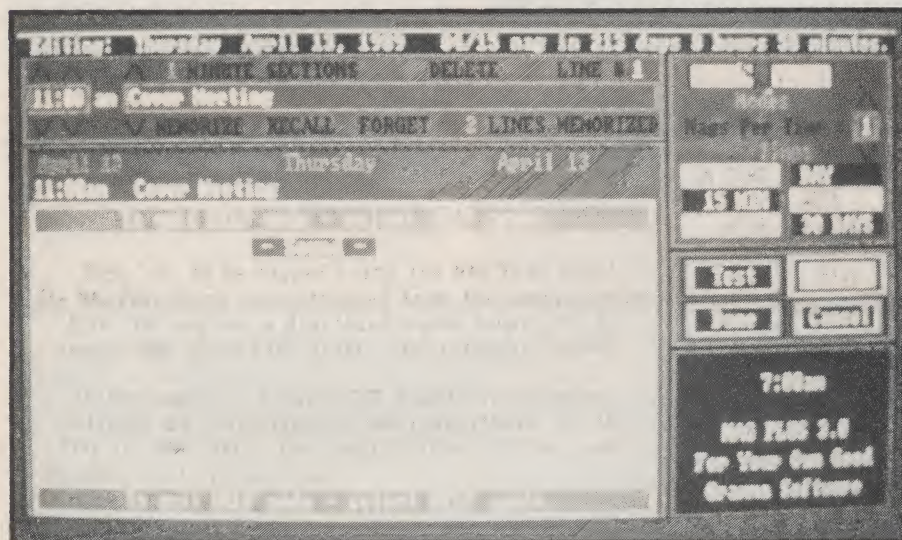
Once you have finished looking at or updating Nag 3.0 a click on the Shrink gadget removes it from your screen leaving a small bar showing that Nag 3.0 is resident, clicking shrink also saves any amendments out to disk. Whenever you wish to recall Nag 3.0 you simply need to hold down the Left Alt, Left Amiga and a key at the same time. Nag 3.0 will appear on the screen no matter what you are currently working on.

If you have read a review on the AREXX language then you will be interested to note that Nag 3.0 contains an AREXX interface. Nag 3.0 can execute REXX and EXEC commands at times specified in the appointments window. You use the AREXX interface by typing the commands in rather than an appointment. When the nag occurs the command you entered is sent to the REXX master or executes the command.

Since Nag first appeared as a public domain program it has undergone numerous revisions. Most of the changes to Nag have taken place due to feed back from people using the earlier public domain versions. Because of this Nag is extremely user friendly and has many features that make it an ideal program for use as a scheduler on an individual basis. Though it could be used in an office environment with a secretary keeping track of everyone's appointments Wordperfect library would be my choice for this type of scheduler. On a personal day to day basis Nag 3.0 would be my own choice as it is easy to use and the ability to set up to-do lists with automatic carry forward is a feature that I have used often when testing the programs.

If you are tempted by the *Wordperfect Library* and are put off by its price then consider it as separate programs, the price per program makes it seem extremely cheap — perhaps you might be able to buy them individually one day!

ya



Nag 3.0: setting up the dates

The main section of the display is taken up by the appointment schedule. At a glance you can see if there are pending appointments and see whether forthcoming appointments have been told to nag you with display, sound or speech. Upon starting up the system should it be found that any NAG's have been missed then you will be asked to click on the clock where you will be reminded of the missed nag's.

Entering new appointments/information is a doddle. A separate editing window is displayed and you can enter the relevant information. Once your information is entered you can set up options for the nag — do you want sound or voice? You can select when you want reminding of you appointment — 30 days before, a week before, a day before, an hour before, 15 minutes before or on time.

If you have a meeting that occurs on a regular basis Nag does of course allow you to set this up.

Nag can remember up to 99 appointments for each day or 99 lines of text.

and only print out details of these.

Should there be too few lines available within Nag for descriptions of a meeting and so on. then you can call up a note that is attached to an appointment or date using the Amiga Notepad program. If you use a different editor then you can use this by changing the Nag 3.0 custom file. If using this option then you should really have the Notepad and the documents that you have associated with Nag 3.0 stored on the same disk as your Nag 3.0 information, this really saves a lot of disk swapping.

I mentioned earlier that it is possible to set up a to-do list within Nag 3.0. this is a very simple thing to do. When you enter a new nag/appointment you have to enter the type of Nag. This can be ACTION, BIRTHDAY, ANNIVERSARY, DEADLINE, blank (for holidays) or a time. If you choose ACTION for the type and you haven't checked the item off as being done then it will be carried forward.

The automatic dealer built into Nag 3.0

Title: Day to Day
Supplier: Digital International
 Kelsey House, Barns Road
 Badleigh Salterton, Devon EX9 6HJ
 Tel: (0395) 45059
 Price: £29.95

Title: Wordperfect Library
Supplier: Wordperfect UK
 Wellington House, New Zealand Ave.
 Walton-on-Thames, Surrey KT12 1PY
 Tel: (0932) 231164
 Price: £99

Title: Nag Plus 3.0
Supplier: Gramma Software
 17730-15th Avenue N.E.,
 Seattle, Washington 98155
 Tel: (206) 363-6417

BBC on a disk

An important piece in Commodore's strategy of support for educational computing falls into place with the release of the The Emulator. Ann Owen investigates this BBC Micro on a disk.

■ **Commodore's BBC Emulator is an important plank in their educational sales strategy.** Commodore will naturally find success with the Amiga 500 in art and music classrooms and the Amiga 2000 — except for BBC compatibility — is a mirror image of the Department of Education's specification for the perfect educational computer!

The emulator comes on a single 3.5-inch disk accompanied by 19 page A5 manual.

Interaction

■ **Disc format incompatibility has**

in the manual.

*IMPORT copies a complete disk. For instance to copy the entire contents of a DFS disk in drive 0 to the AmigaDOS drawer called drive 0 you simply issue the command *IMPORT 0 0.

*ICOPY is used to copy selectively from a BBC disk. The syntax will be familiar to BBC users eg

ICOPY 0 1 txt.

copies all the files in directory txt on BBC drive 0 into AmigaDOS drawer drive 1.

In command

■ **The emulator supports a wide range of BBC operating system commands** such as *KEY to program the function keys and VDU calls (0 to 31 and 127). Some special * commands are also provided for exchange between the "BBC" and the Amiga. *AEXEC and *ASPOOL take an AmigaDOS pathname as a parameter, allowing the easy transfer of a text file (which could also be a spooled BASIC listing) to Amiga format and vice versa. A Viewstore database file for instance can be copied to an Amiga disk for importing into Superbase.

*CLOSEDOWN and *FORCECLOSE are, respectively, instant and temporary ways out of the emulator.

*TITLE

*DISC

*DISK

*BUILD

*DUMP

*LIST

*TYPE.

There are no *BACKUP, *DESTROY or *WIPE commands. Such operations can be carried out with AmigaDOS.

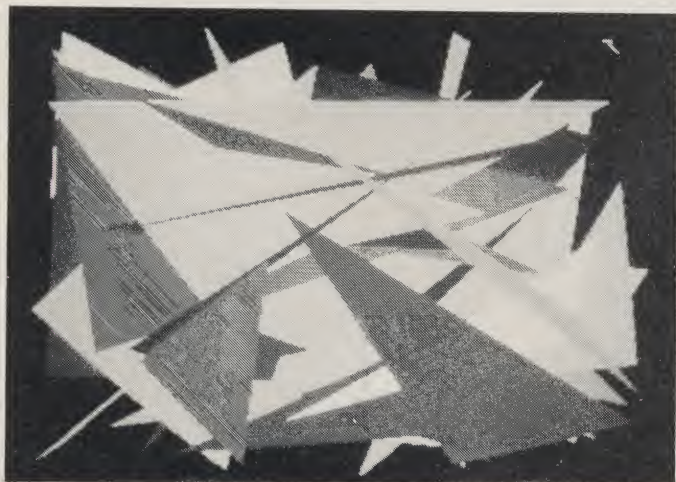
There are also some new * commands. By default the emulator believes drives 0 to 3 are present in "drive" drawers 0 to 3 but with *ASSIGN you can tell the emulator to change its mind and believe that, say, RAM: (the RAM disk) is drive 0 or that hd0:drive 0 (a drawer on the hard drive) is drive 0.

In order to act like a valid DFS drive, the drawer must have a DFS catalogue. This is created in an empty drawer by using the command *MAKE and can be recreated (after AmigaDOS editing) with *REMAKE. If MAKE comes across a BBC format filename it prompts for hex load and run addresses. For instance, having transferred a utility ROM you might answer

load address: 8000

execution address: D9CD. This stage can be bypassed if the file is not machine code.

The downside



required the designers of the emulator to provide a serial link with the BBC Micro for data exchange. In fact data "import" is the correct description. The emulator is selfish and incapable of returning data whence it came.

*CONNECT (baud rate)

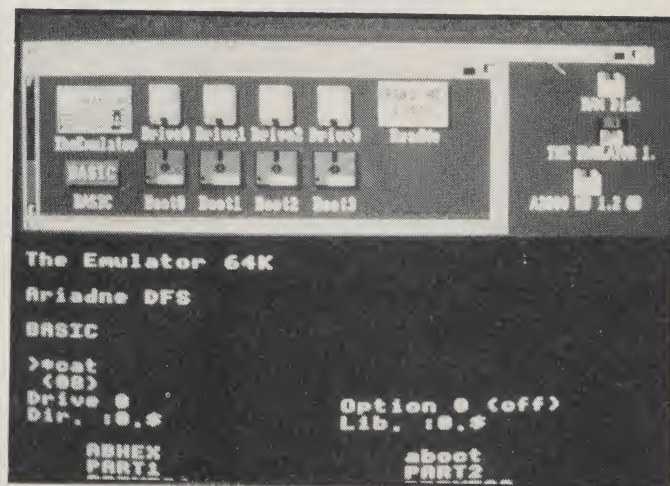
*SEVER

*IMPORT (remote BBC drive number)(emulator destination "drive")

and

*ICOPY (source)(destination)(ambiguous file specification)

are the commands which manage file transfer. *CONNECT supports baud rates between 300 and 19200, defaulting to 9600 for a compromise between speed and reliability. Simple error checking is built-in we are told



Drawers become drives

■ **The ingenious "software drives"** implemented by the emulator come under the control of the (this is no misprint) "disk furling system". Familiar BBC Disk Filing System commands provided are:

*ACCESS

*COMPACT

*COPY

*DELETE

*DIR

*DRIVE

*ENABLE

*INFO

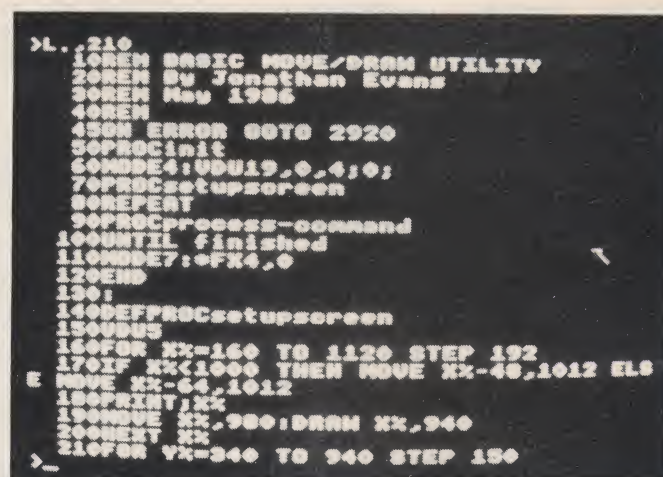
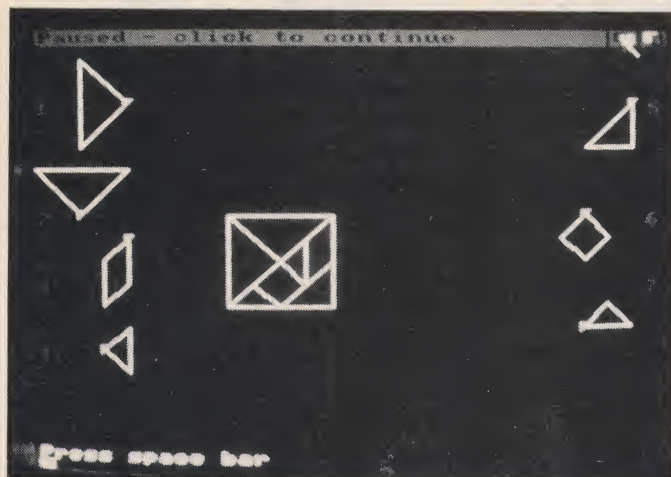
*LIB

*RENAME

■ **There are a number of problems I can foresee with the emulator.**

■ You cannot backup the emulator disk. Because the software disk drives have to be accessed regularly you could find yourself with a corrupted disk and no backup. James Associates, who "brought it to you" do however offer hotline telephone support in office hours and a lifetime guarantee on the disk. No mention of a 24 hour breakdown service however, and even 24 hours isn't good enough when you've got a classroom full of impatient kids.

■ The emulator would not load from any drive other than the internal drive df0: nor was it possible to install the emulator on a hard disk although holding software disk drives (DOS



drawers) on an external drive or hard disk can be achieved. None of this is discussed in the manual.

■ The emulator can not read BBC disks, DFS or ADFS and any transfer process is therefore likely to be time consuming. Copying via serial cable as described elsewhere is not always convenient. When files are successfully copied the "make" procedure involves keeping records of file attributes for machine code programs.

■ The vast majority of quality educational software on the BBC Micro is coded in a mixture of BASIC and machine code. This means that the slower 6502 emulator has to be used rather than the fast BASIC 2 also supplied. The same rules about "illegal" software which bypasses the BBC Operating System apply to this emulator in the same way as they do when using Acorn's Tube (second processor) and the BBC emulation provided on the Acorn Archimedes.

■ Non-technical class teachers will not appreciate the documentation which assumes more knowledge of both the BBC Micro and the Amiga than can be reasonably expected.

■ Purchasers beware. There is no serial cable supplied with the package. You'll need to write off to the suppliers with '9.95 if you cannot follow the DIY soldering instructions.

■ For technical reasons some BBC software will not work adequately on the emulator. ENVELOPE is not implemented so any programs using sound will have a hard time. Any interfacing (including input devices such as joystick, mouse or pad) will not work. The programmers have chosen speed over precision when dealing with floating point numbers. Four bytes of precision rather than five are possible, providing six rather than nine decimal places of accuracy.

The upside

■ **Positive aspects of the Emulator also abound.**

■ The BBC BASIC 2 is a standard language for computer studies. There are many books and articles aimed at students which use this BASIC for examples. The BASIC is coded in 68000 from scratch and proved quick and comprehensive. Ariadne Software, the programmers, have done an impressive job with both the BASIC and the 6502 emulation.

Many teachers and students have written their own programs in BASIC 2 which will run quickly and, where legally written, without significant conversion problems on 68000 BASIC 2.

■ Amiga programmers at home familiar with BASIC from school may well find the popular structured BBC BASIC a good reason to buy this software in its own right.

■ Students can use a built-in 6502 monitor to help with their understanding of this processor. Once again there is much teaching material based upon it.

Conclusions

■ **This is an important piece of software** for Commodore, who have ambitions in the educational market. The Amiga usually sells on its own merits but in business no-one ever got sacked for buying IBM and in education no-one ever got sacked for buying Acorn/BBC.

Software can be ported fairly easily but only the least ambitious of BBC educational software will run. Two-way communications between Amiga and BBC would have been welcome so that data could be transferred both ways.

Anyone familiar with BBC BASIC and wishing to develop programs may confidently buy the emulator for their own use although they will find wider distribution of any programs restricted.

From a practical classroom point of view it is difficult to imagine many situations where the Amiga will be required to run programs side by side with BBC Micros. Compare the time difference in preparing 20 DFS disks for

copying, copies of other files on the disk can be made. This might provide the technically aware teacher with enough peace of mind to set up a "turnkey" disk as described in the manual. This involves changing the s/startup-sequence file to automatically ASSIGN drives and to BOOT (automatically *AEXEC) a file.

■ With enough RAM in an Amiga 2000 (3Mb) you could run the BBC emulator, PC window onto the PC coprocessor and AmigaDOS side by side in one machine.

YA

a class of BBCs with transferring and testing a disk before duplicating for a class of mixed Amigas and BBCs.

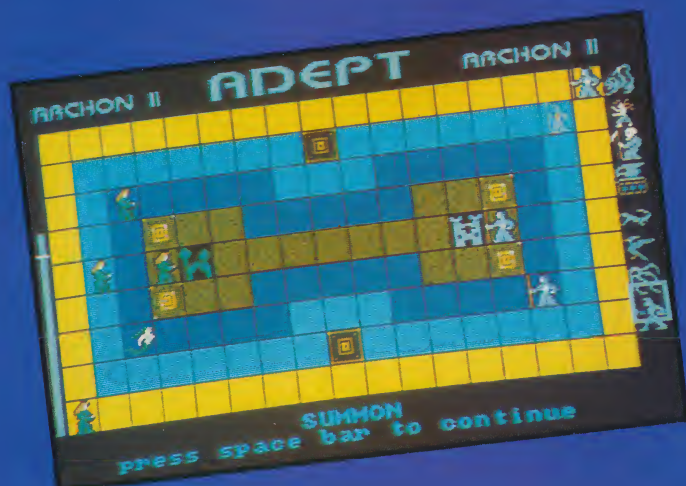
The best BBC Micro software currently being released is "illegally" programmed as far as the emulator is concerned and will not work. It will also be illegal to transfer such commercial software. Its use on other BBCs is often catered for by network or site licenses and these agreements may not extend to other computer makes.

Transferring data for database, spreadsheet, wordprocessing and desktop publishing work is therefore the most likely use of the emulator. Which is unfortunate because that underutilises this excellent attempt at a "BBC Micro on a disk". But for Commodore the emulator will have done its job and the Amiga will be acceptable as an educational computer, a job for which it is undoubtedly well qualified.

The "PC" route

■ **An alternative method of copying** BBC files to the Amiga is the "PC" route. Firstly copy the BBC file to a PC disk — with GETFILE on the Master 512. Secondly read the PC disk in an Amiga drive with DOS-2-DOS or the PC utilities on Workbench 1.3 (with special 5.25" drive). Copy the files into a "disk" drawer before "making" the directory. DOS-2-DOS is pricey at around £50 but the PC route is a useful alternative if cabling up your computers side by side is an impractical proposition.

THE ARCHON COLLECTION



■ Inventing a new strategy game is not very easy. Most are based on a few old themes and to date, no-one has used the capabilities of a computer to play an integral role within the game.

No-one that is until the inventors of Archon came along. Even then, it is only when you actually start playing the game that you begin to notice how clever the game design is. First impressions are that the game is a chess variant. There is the traditional chequerboard playing area albeit on a 9x9 grid rather than the usual 8x8. Then there are different pieces, each with their own move capabilities. Upon closer examination, Archon appears to be based on other traditional game ideas. In order to win, you have to occupy five power points or totally eliminate your opponent's forces.

When you start to play though, you soon discover an element of the game that a traditional board game cannot handle. The playing area changes! The battle is between the forces of light and darkness and as the pieces move, so some of the squares start to change colour. This is known as the luminosity cycle as they change from light to dark and back again in various stages. As the squares become lighter, so the forces of light have an advantage and vice versa. Not all the squares change so there are always safe havens for your pieces but the cycle definitely affects your strategy within the game.

The other unusual feature about Archon is that when two pieces wish to occupy the same square, they have to fight for it. The pieces are all based on mythological creatures and all have different fighting capabilities. Some creatures such as goblins have to get close in to their opponent in order to attack with their swords and clubs. Others, such as valkyries hurl missiles and can attack from a distance. Then there are banshees who create a lethal area around them when they wail or phoenixes that do the same but with fire. Other combatants include dragons, manticores, trolls and shapeshifters who automatically take on the guise of their opponent.

Success in combat depends on quick reactions and an understanding of the best tactics for each piece. Again, the luminosity of a square is important. Should you not feel particularly dexterous, one nice touch is that you play in cyborg mode in which you make the moves but the computer lights your battles for you.



If all that was not enough, you can also cast magic spells. Pieces can be swapped, elementals summoned and creatures healed, revived or imprisoned. A useful tactical spell is to reverse the flow of time so the squares stay beneficial to you for longer.

Gordon Hamlett gets involved in a power struggle between the forces of light and dark

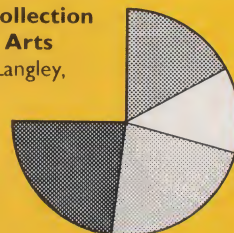
Archon II is a game in similar mode though not quite as much fun as the original. Based this time on the four elements of air, earth, fire and water, you take it in turn to either move one of your four adepts, cast a spell or move a previously summoned icon. Magical power is all important here, the more you have, the more powerful spells you will be able to cast. Should the situation turn irrevocably against you, you can always take the easy way out with the apocalypse spell.

Both games are highly playable and have a full range of options — human or computer opponents, different skill levels, demonstration mode and so on. If you are in the least bit interested in strategy games, the Archon Collection must feature very highly on your future shopping list.

ya

THE ARCHON COLLECTION

Title: **The Archon Collection**
Supplier: **Electronic Arts**
11/49 Station Road, Langley,
Slough, Berks
Tel: **0753 49442**
Price: **£24.95**



Graphics: 17
Sound: 12
Gameplay: 23
Value: 23

Desktop publishing comes in many strange shapes and forms. Karen Young looks at one, screams and runs away

■ **Deluxe Print 2** is a new type of DTP package. It enables the user to put images and text together on a page as is now traditional with most bottom level DTP packages, but instead of concentrating on laser printer output, *Deluxe Print 2* concentrates on letting you mix text and graphics so that they can be output onto a dot matrix or colour printer.

The program doesn't just stop there though. Because the Amiga is such a colourful beast, *Deluxe Print 2* enables you to colour in pictures and images, not only giving you the advantage of colour, but also the ability to coordinate said colours into "eye catching combinations".

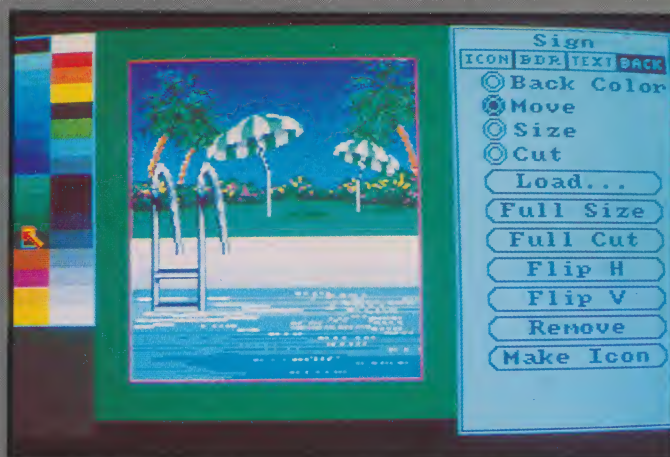
disk to another depending on what workbench disk you boot from).

The second disk is the Art Disk containing the program's printer test and the library of images. The library contains borders, icons and backgrounds for you to use.

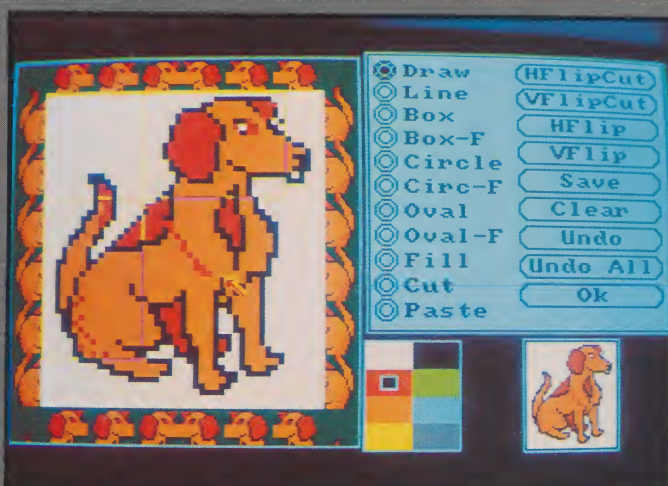
The first screen that appears when you boot the DP2 disk is the sign format screen.

will require a front and an inside right but unlikely a back or an inside left (unless you really want to start getting adventurous). The same goes for a four-tile sign — this is built up of top right and left areas as well as bottom right and left areas and all or just one of the areas can be designated as drawing areas.

Very often it is desirable to have a page



Deluxe Print 2



Deluxe Print 2 also fits into the family of *Deluxe* packages. Although it is a little out on a limb, *Deluxe Print 2* can still import graphical images from other packages such as *Deluxe Video*, *Deluxe Productions* and, of course, *Deluxe Paint 2*.

To use *Deluxe Print 2*, you will need an Amiga with at least 512K of Ram — as usual Electronic Arts recommend a full megabyte — and Workbench 1.2. I have converted it to run on Workbench 1.3 with ease.

The printers supported all run using the 1.3 printer drivers (although I wasn't able to test them all). *Deluxe Print 2* will happily work (to a limited extent) on an Amiga 500 although it is not possible to use point sizes greater than 100 point or more than three or four fonts per image.

The software comes as two disks that can be backed up or moved onto hard disks. The Program Disk contains the main *Deluxe Print 2* program, the type fonts and the styles (although you can transfer your fonts from one

This is the screen you work with for most of the design process, if you wanted a different design format, you would choose it from the format menu box.

There are a number of standard format sizes to use, one of the most popular will be Sign Format size, a suitable size printout area for most posters, fly sheets and information sheets. DP2 lets you begin a new design in the same format without saving the previous design — simply select clear from the file menu.

Whenever you start a new design or change from page formats, the software changes the background colour as white and the appropriate graphic element for working in the background (also known as BACK) is highlighted.

The various different formats are displayed under the FORMAT option in the menu — you can select either a Sign, a Banner, a letterhead, a calendar, a greeting card or a four-tile sign. Each option has a different page layout format. For example, a greeting card

of a card and banner or a poster to be bordered with some florid or special design — you can either use some of the designs with the DP2 package or you can load in designs imported directly from *Deluxe Print 2*. If you are using IFF file formats, from your favourite art package that supports IFF (*Photon Paint*, *DigiPaint*). In fact you could poach images from digitized pictures and use them as borders.

With the Art disk come plenty of shapes and symbols that can be put into corners (either curved, shaped or angled). When you select an icon, border or font, a sample of it appears on the screen — usually in the lower left corner of the screen. The corner sample is particularly useful when choosing different fonts. The text you type in is displayed in the system font, but the corner samples show how the font will look on the page — a sort of rough approximation.

The Corner Sample also helps when you edit an icon or use an Icon for a border design. As you modify the design, the changes appear

in the Corner Sample. Since Corner Icons are truncated to fit within the border space, the corner sample shows how the full icon looks.

Every Format shows you an outline of the area available for placing graphics and text. The Print Area option for graphics is one inch from the outer edge of all four sides of the page.

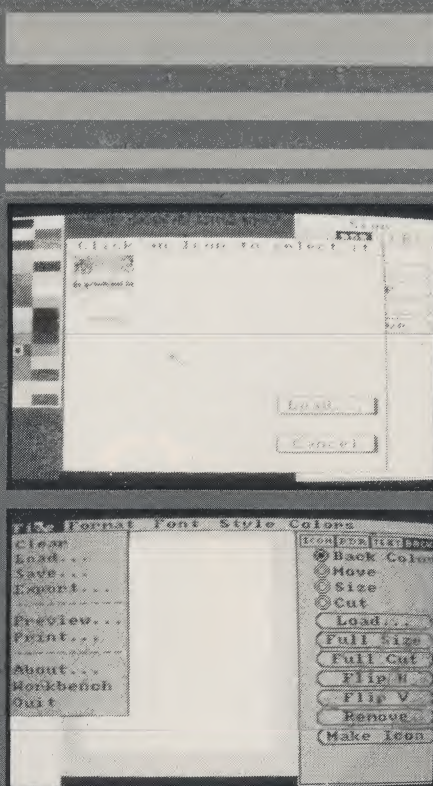
Each format can include four graphic elements in a finished design. ICON, BorDeR, TEXT and BACKground, with the exception of the label format which does not support borders. These graphic elements appear as icon-like buttons under the format name. To add, move or change one of these elements, simply click on the desired "button" (where it will be highlighted) — the default graphic element is the background.

Icons can be changed in all manner of ways. They can be moved, resized, previewed and placed onto the page via a grid for more accurate placement. Naturally it is not really good to stretch or expand a picture too much as it soon starts to distort quite badly and any pixillated effects ending up as large blocky designs, but it is possible to zoom up a design using DP2 and then load it back into *Deluxe Paint* for editing and then loaded back into DP2 for final placement. This is an effective way of altering an image so that even when it is enlarged quite a bit, the Amiga can still display it as well as it possibly can — even if the process is a little long winded and drawn out.

Printers Supported

As I mentioned earlier, DP2 supports all of the printers now supported by Workbench 1.3 so the Apple Imagewriter was able to output images with reasonable ease (once I got a cable working that is!). There are no problems with the Epson FX80 and I even managed to get a dump from an HP-compatible laserjet.

I found that the colour facilities left a lot to be desired and the grey scale conversion from using a colour image to printing out using a dot matrix printer was a little inaccurate. A thirty per cent grey scale tint was not really three times darker than a 10 per cent tint, but, as we are working with printer resolutions almost exactly half that of the Amiga's working resolution, I think this is a problem aimed solely at the printer manufacturers. When will you guys come out with a reasonably priced colour dot matrix printer instead of offering us half



baked excuses like the Star LC-10 colour option?

The Apple Imagewriter II has a reasonable colour facility and, with a few hours fiddling around, I managed to get a reasonable colour approximation of what was on the screen, but I still feel that this software works best with black and white images with brash grey scale tones (say 10, 30, 60 and 100 per cent — no measures in between). I would dearly love to try this out on a few of the new wax thermal printers making their way across to our stores and bureaux from the states, but at the moment, Apple seem to be hogging them all. Come on, why bother, Apple, you've got 16 billion colours to play with on the Mac II, so why waste your time with 5000 colour technology?

Conclusions

This is an inadequate piece of software. It gives you little more than a well behaved art package, it ties you down to a few limited output options and then forces you to output

your images out onto a black and white printer. This program does not do justice to the Amiga's power, speed, or flexibility of graphic handling.

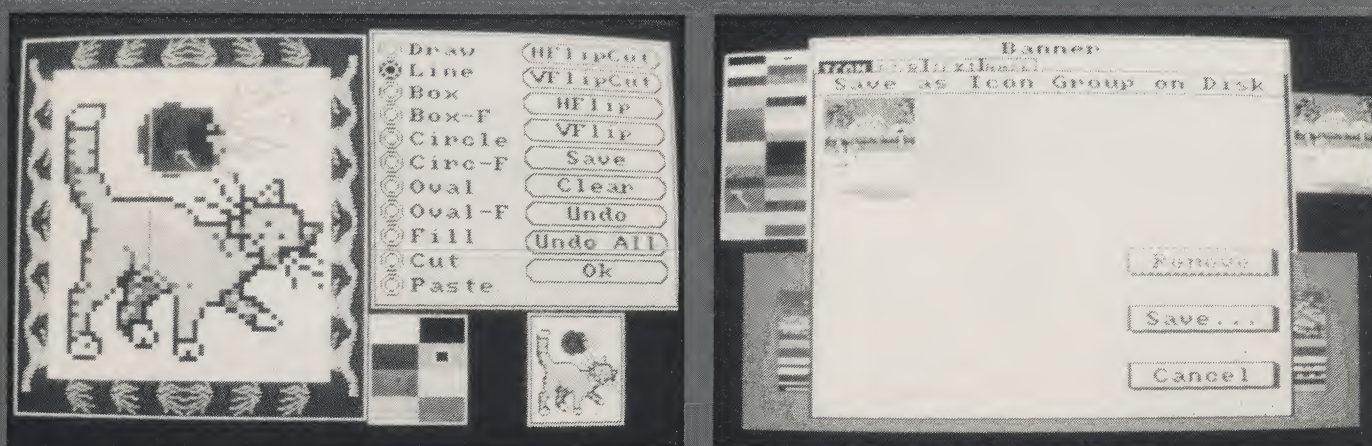
Designing banners and posters isn't about subtlety or thousands of hues. It's about brash images — large chunky letters and silly images that catch the eye, no matter how irrelevant they are. Just have a look at the window of your local bingo hall or social club to see what I mean. Colour images are possible with this package, but with only a poster the size of an A3 sheet of paper and then you will have to spend most of the evening printing it out. If it is any larger than A3 then it's time to resort to sticky tape and scissors (and a grown up to help you). Don't try to produce anything more than a simple banner because this program isn't capable of doing a great deal. What it does do, it does well, but that isn't enough where it concerns the Amiga. Here you are tied down to the quality of a dot matrix printer and there is no one on this planet that will convince me that a dot matrix printer can do justice to the machine (apart from Fin Fahey — he's from Cygnus Alpha (Incorrect — even in *Terran* terminology my home star is known as Alpha Cygni, or by the proper name Deneb, from the Arabic meaning, 'The Tail'. We Denebians, of course, refer to it merely as Skro N'Gurzi, which translates into your language as 'The Sun' — FF).

I found *Deluxe Print 2* less than satisfying. The idea is there, but the approach is wrong wrong! It could do with a more flexible front end, a proper WYSIWYG display instead of a miserly little corner and if the screen is too small to show us the image it would be nice to zoom in and out of it with the ability to edit at 200 per cent resolution. I'd appreciate a few more fonts and the ability to accept text files too. A higher resolution would help since many of us can run 1 Mb software and certainly those of us interested in graphics need a full megabyte. One last request. Please, EA, give us the ability to generate four colour separations using laser printers or even a Linotronic.

YA

Title: **Deluxe Print 2**

Publisher: **Electronic Arts**, Langley Business Centre, 11-49 Station Road, Langley, Nr Slough, Berks SL3 7YN
Tel: (0753) 49442
Price: £49.95



Andrew Brown finds a new, and easier, way to put a PostScript printer to work

■ **Owning a PostScript laser printer** can sometimes be a frustrating experience, particularly when you first get it, as, far from swanking around producing pages of typeset material you tend to spend a lot of time poking it, and wondering why there is no form-feed button. This is because it's not really a printer in the same way as an Epson FX80. Rather, it is a computer that understands programs written in a language called PostScript, and outputs the results onto paper. This means that you can't just send text to it in the hope that it will somehow print out the results.

No, what is required is a proper printer program that will exploit the truly amazing facilities of PostScript. DTP packages will of course stretch the printer to the full, but are often too complex for your daily needs. Now along comes *ProScript*, a printer program which works with *ProWrite* in the same way that *LaserScript* works with *PageSetter*.

Difficult part

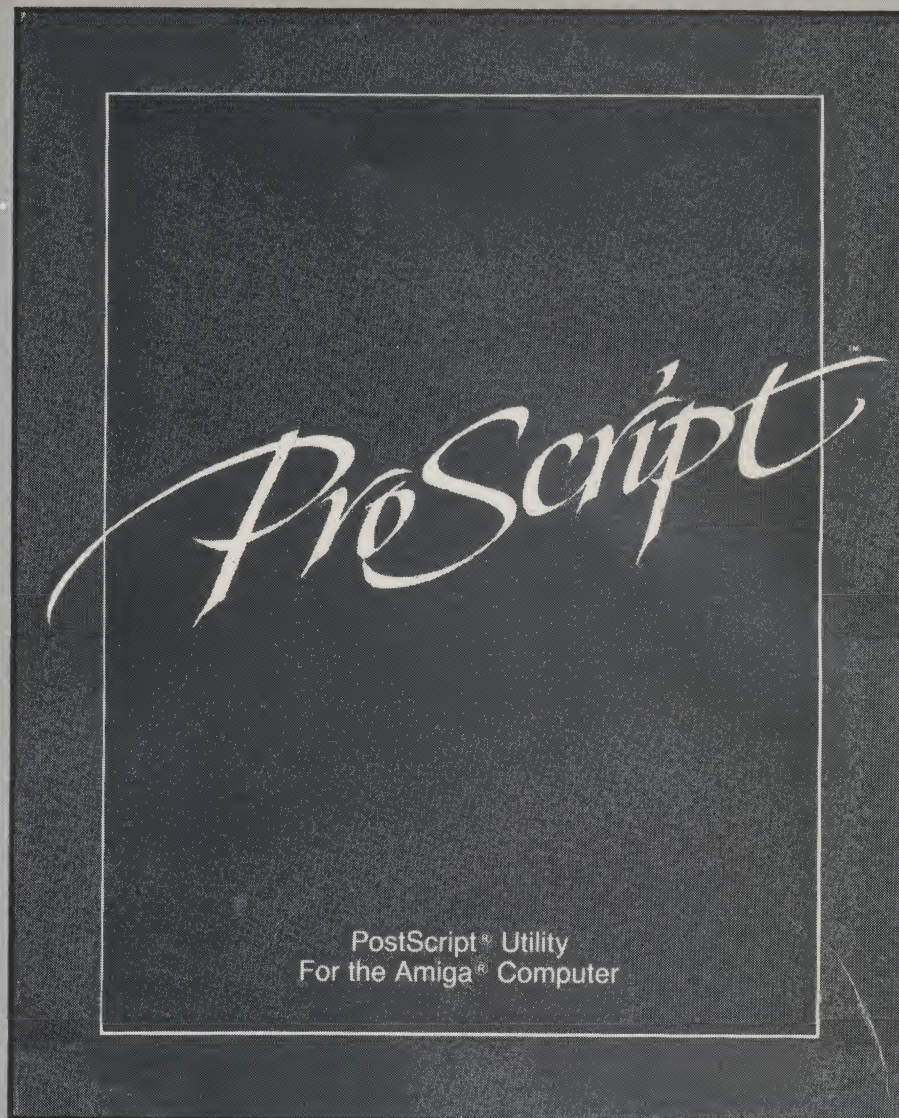
■ **The most difficult part of using *ProScript*** is installing it; to do this you have to hack apart a Workbench disk to fit on not only the *ProWrite*, and *ProScript* software, but also the font definitions for the Adobe fonts. You will have to delete most, if not all of your standard fonts, plus any utilities you have, but this is no great loss when you see the quality of output available from *ProScript*, and you will still be able to use drive df1: (if fitted) for documents. Hard disk owners will be able to ASSIGN the correct directory for fonts, and will be able to use fonts for *Professional Page* into the bargain.

Once installed

■ **Once installed the program is a breeze** to use, just double-click on the *ProScript* icon and follow instructions. A bonus is that owners of expanded memory machines will be able to have both *ProWrite* and *ProScript* in memory at once, allowing easy switching between the two. In use, the program puts up a file requester window much like that in *ProWrite*, in fact it only allows *ProWrite* files, which is something of a drawback given that program's rather limited file conversion ability. However once the file is loaded printing is usually only a matter of clicking on the start button, and text will be printed out in a minute, or so.

One point to watch out for is that *ProScript* comes set up for American paper, and so you may need to set A4 paper as the default. You can also print to a file which is useful, as the .PS files produced can be copied directly to the printer without *ProScript* being present.

Those among us who are more ambitious



can also access the general Page Setup dialog, which allows the user to make use of some of the more interesting PostScript features, such as rotation and scaling of pages. Mail merge is also possible, and the package can also be run from the CLI giving great flexibility in batch files for example.

One thing should be made clear however, *ProScript+ProWrite* does not make a DTP package, the layout facilities and graphics handling are too primitive for that. What it does do is provide an efficient way of providing very classy printouts from this Amiga wordprocessor. *YA*

Printing for Pros



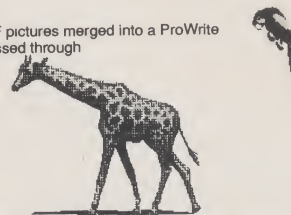
CLIP ART CAN
COMBINE WITH
BIG TEXT TO
GET OVER A
MESSAGE

A big bold introduction in Times 24 point to get this article on its way

The rest of this article on New Horizon's ProScript addition to their popular ProWrite wordprocessor is in Helvetica 12 point. From now on!

I've incorporated a bit of topaz 11 point to show what happens when an Amiga font is used in a ProScript document. Courier and σμμβολ (symbol) fonts are also available. ProScript also converts colour pictures into grey shade versions - see below.

These are eight colour IFF pictures merged into a ProWrite document and then processed through ProScript



The following grey shade values are used to produce best results:

Shades of Grey	Halftone density
2	150
4	100
16	75
256	default

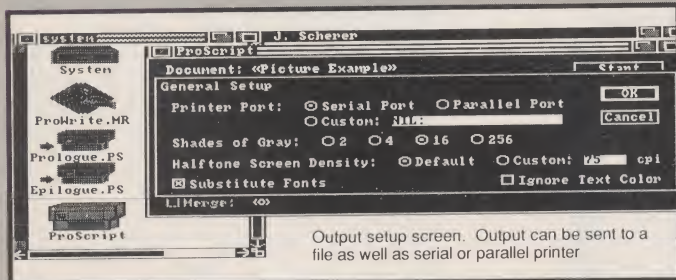
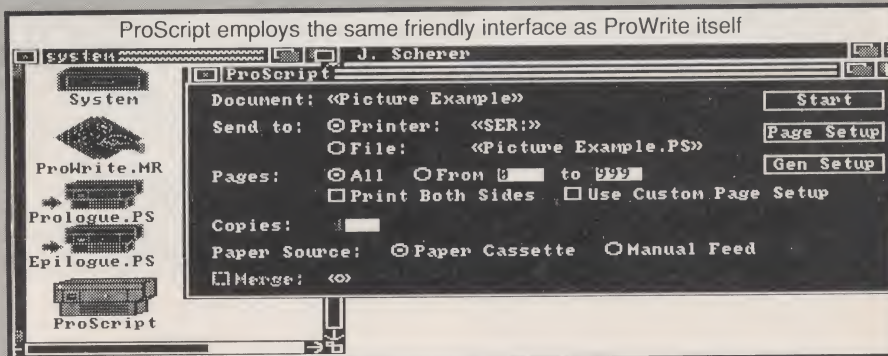
16 is the recommended value for ProWrite eight colour pictures while 2 suits black and white only pictures.

This black and white artwork was digitised with Precision's Digipic, imported via ProWrite's Get Pict... Project option with full shading, black and white only.

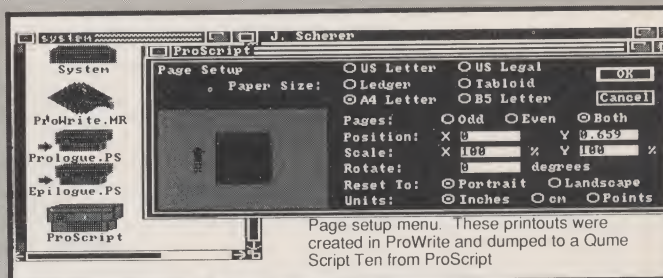
The ProScript genie of the lamp has printed it on an AST Turbolaser



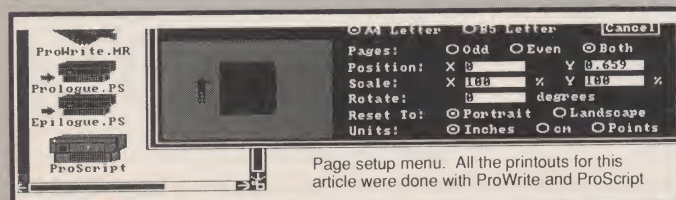
ProScript employs the same friendly interface as ProWrite itself



Output setup screen. Output can be sent to a file as well as serial or parallel printer



Page setup menu. These printouts were created in ProWrite and dumped to a Qume Script Ten from ProScript



Page setup menu. All the printouts for this article were done with ProWrite and ProScript

ProScript is available from:
Title: **Pro Script**
Publisher: **New Horizons**
P.O. Box 43167
Austin Texas 78745
Tel: (512) 328 6650

Warlock's Quest



WARLOCK'S QUEST

Title: **Warlock's Quest**



Graphics 8
Sonics 5
Gameplay 7
Value 6

■ Things aren't getting better here at Crosby Mansions. No sooner do I lay *Hellfire* to rest than this little gem flops onto my doormat. *Warlock's Quest* is an arcade-style adventure in which you steer your little warlock through zombies, ghosts, bats, spiders and fire-breathing minotaurs in search of jewels and other items that will help you reach the end of your quest.

To achieve this goal you must gradually work your way from left to right, shooting the aforementioned beasties and avoiding traps. Eventually you will find your self confronted with the Foul Master (presumably he keeps chickens) who has stolen the Karna which, as every schoolboy knows, is the ultimate precious jewel, granting infinite power to he who learns the secrets. Understandably you're quite keen to get it back.

Much as in many roleplaying games the Warlock has skill, strength, magic levels, and so forth that whittle away and kill you off if you're not careful. It's not surprising that these elements are in there when you find out that programmer Oliver Zimmer is a founder member of a roleplaying game club, as the instructions proudly state. Still at least they haven't tried to insult our intelligence by giving us some tedious novella to wade through.

Regrettably *Warlock's Quest* takes no real advantage of present day computer architecture and would be far more at home in a nice cosy ZX Spectrum somewhere. There are a few sampled sounds but these don't save the on-screen display which must have taken the programmer a good eleven seconds to conceive. Maybe the chaps at ERE should have looked at the three secrets of success before releasing this one. *YA*

■ One of the features that attracts newcomers to the Amiga is its superb graphic capabilities which knocks spots off all its rivals. To this end, a number of do it yourself art packages have appeared to make the most of the machine's capabilities. The market is already cluttered with probably more art packages than it needs ranging from the sublime to the ridiculous. As such, it is very difficult for a new package to gain much of a mass appeal unless it has something pretty special going for it.

Unfortunately, *TR Sketch* offers little or nothing new and indeed has only a fraction of the functions that rival packages offer. I always



TR SKETCH



find it a bad sign when the manufacturers have to spend several pages trying to justify the changes that they have made especially when some of these arguments are at best dubious.

For example, point 4 (of 9 justification points) states that the screen should be a drawing board and as such, not cluttered up by gadgets or borders. Instead, the functions should be quickly accessible from menus or the keyboard. Now to my way of thinking, it is easier to have all the main functions easily accessible from one control panel on the side of the screen rather than have to remember a series of key strokes or go searching through the menus. Even if you disagree, it is hardly a major selling point. The one useful facility that I found here was an on screen help function describing what everything does in the event your instruction manual is not to hand.

Enough negativity for the time being, what can *TR Sketch* actually do. Even here, the answer is not a lot as the idea was to keep

things as simple as possible. You can draw freehand, in straight lines, rectangles and very slow ellipses. Text can be inserted and there is an airbrush facility although you cannot vary

Gordon Hamlett goes scribbling and draws a blank

the width of the brush. There are fill commands and you can cut and paste your design as you see fit. Designs can be saved and printed out.

The manual is poorly written on poor quality paper and is riddled with spelling mistakes — an unforgivable error in this age of spelling checkers on the word processor. Some of the instructions are confusing such as those pertaining to saving designs. Nothing that can't be overcome but an increase in clarity would have helped considerably.

As many Amiga owners will already have something like dPaint bundled with their machine, there is no need to pay good money for a much inferior product. Even if you do not already possess an art package, I would suggest that you look elsewhere. To be asked to fork out nearly thirty quid for this is in my opinion, a total rip off. To be perfectly honest, I have seen eight bit magazine listings at least as good as this. If you really want to be this low-tech, use paper and pencil instead. **YA**

TR SKETCH

Title: **TR Sketch**
Authors: **Trycosopht**
41 Ford Road,
Busselton
WA 6280
Australia
Price: **TBA**

Universal Military Simulator

Gordon Davis wonders if Rainbird's latest offering justifies its ambitious title

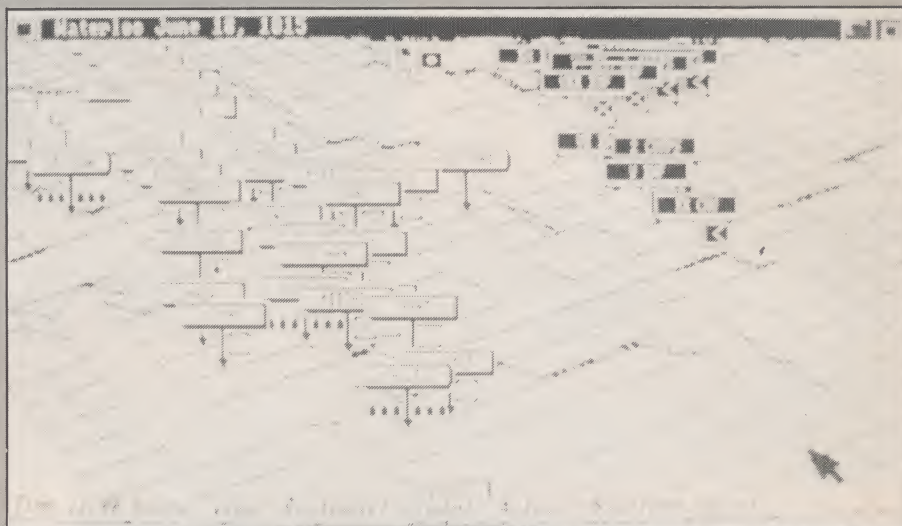
■ Rainbird's *UMS* is something of a departure for the company — it's not usually noted for its strategy wargames. This is a package that stakes a large claim with its very title — the 'Universal' means that using this program, you are supposed to be able to simulate just about any battle, from classical times to the present day.

UMS is primarily a construction kit — this is usually a good idea, since the authors can then benefit from additional scenarios constructed by themselves and by users. *UMS* has already generated two additional scenario disks, Vietnam and the American Civil War. Besides these, there are four scenarios on the original *UMS* disk ranging from Alexander's great battle over the Persians at Arbela through Hastings and Waterloo to Gettysburg.

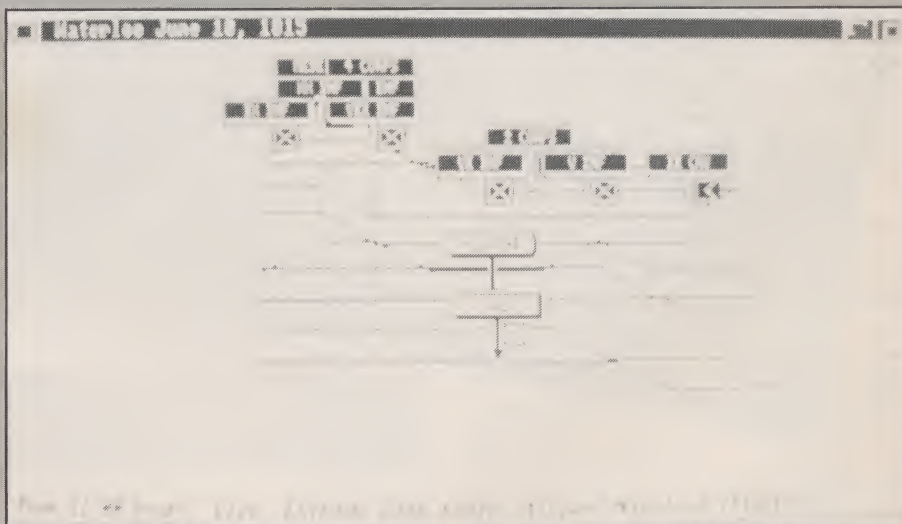
At first sight, *UMS* looks good. The grid-based playing area is depicted in three-dimensions, meaning that the accent is on ground contours rather than terrain as factors affecting movement and fighting. This playing field can be viewed from all compass directions, and at three different levels of zoom. Both military units and landmarks such as towns are shown as flags. Unusually, they are situated at the *intersections* of grid lines, rather than in the squares as usual.

Control of a battle is, as is usual for this sort of game, phased. During the Command Phase, orders can be given to units to move to given squares, engage the enemy and so on. Alternatively, either side can be handed over to computer control and a broad strategy defined, such as left flank attack or a defensive posture. Once the movement phase is ended, each side attempts to carry out its orders. The side to lose the lowest percentage of its forces by the end of the game is broadly the winner. A construction kit supplied allows you to build up a map, define your army, and link the two together to give a complete scenario.

That's it really. I have to say that I found *UMS* one of the biggest disappointments of recent months, having read reviews of the Atari version which showered it with praise. I can only conclude that the reviewers were simply not knowledgeable about this sort of game. The fact is that for all its graphic panache, I would date *UMS* at about 1983 in terms of its approach to computer wargaming. Since then, the field has perked up remarkably, although there are no British software houses that do



Waterloo: Wellington's the loser



The ultimate zoom takes you in closer

this sort of thing particularly well.

I could bore you to tears with the number of flaws in this program, so I'll just mention a few. First of all, presentation. Good as the display looks, it's ridiculously hard to get a feel for the situation as all the unit flags tend to get in each other's way. The accent on contours rather than terrain (woods, rivers, swamps and so on) limits the flexibility of the scenario designer — I would like to see contouring used more widely, but as a supplement to terrain. We have the absurd position in *UMS* where totally impassible sections of river in the battle of Shiloh can only be modelled by an all too passable ditch.

All that's bad enough, but this program's approach to the noble and refined art of mass killing is quite frankly *crude*. It tends to see a

battle as an attritional affair — if you're left standing at the end, you win. By these standards, Wellington tends to lose at Waterloo, especially since *UMS* has no feature which allows you to bring on the Prussians later in the day (another flaw noted in passing — you always start with your full order of battle — no waiting for reinforcements — crude, crude, crude!). Real battles are fought for specific objectives. These can be territorial, in the sense of reaching, or holding, a location, or tactical — retreating in good order, preventing the enemy doing so, or cutting off their supply routes.

Worst of all is the program's approach to the four cardinal principles of warfare — Command, Control, Communications and Intelligence (C3I to the cognoscenti). It hasn't

got one. The last time I saw a commercial wargame where you can see all the enemy positions, irrespective of range, terrain or weather was probably, oh, 1984... That's intelligence, and as for the C3? There are only two levels of control in this game. You can either apply the crudest control by giving the machine a broad strategy (which incidentally it doesn't perform very well) or you can give every little unit its own individual command. The latter is a task that makes doing your annual accounts look like fun, and is just plain unrealistic. Generals of entire armies simply do not issue commands straight to individual battalions, except in unusual circumstances.

Not only this, but in *UMS* the commands always go through. In real life, runners get shot or lost, orders are misinterpreted and so on, which all adds a nice element of unpredictability to the proceedings. After all the manual does make the point that Alexander won at Arbela largely because Darius, his opponent, ran away, 'decapitating' the Persian army which disintegrated from lack of leadership. In *UMS*, Alexander, like poor Wellington, just tends to lose.

I could go on, but enough said. You probably think I've been a little excessive singling out *UMS* for all this criticism, and that I'm asking a bit much from software designers. Let me point out straight away that there is not a single missing feature I've pointed out that is not available on a computer wargame. There is a problem — these advanced wargames are by and large written by non-UK software houses, and they're written for 8-bit machines — the C64/128 and Apple II. The

most advanced wargames I know, with provisions for: C3I; supply logistics (something I didn't even mention); the complex specification of objectives; reasonable victory conditions and so on, are supplied by SSG, and by and large they are for 8-bitters.

These 8-bit games are actually faster and easier to use than *UMS*, and even for a beginner, I'd hazard, a great deal more fun. So I'm down on this program, not just because it makes claims with its title that it can't live up to, and was appallingly hyped via a lot of other computer magazines that should know better. No, I'm also bitter because I really don't see why owners of the most advanced home computer in the world should put up with software that is functionally inferior to that available to Apple II owners.

After all that, it may seem a little

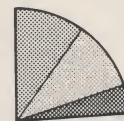
anticlimactic to mention the two new scenario disks that Rainbird has produced for *UMS*. Ho, hum, well, there's an American Civil War one with Shiloh, Chataanooga, and Antietam (SSG has a three volume set of ACW battles — around 15 scenarios in all, plus suggested variants as well). Then there's Vietnam, which is only interesting because it illustrates *UMS*'s inability to deal with that vast conflict except in terms of three rather bloody small-unit battles of no particular importance, except to the poor sods who had to fight them.

To end this review on an upbeat, there is hope — SSG have just released their science-fiction blockbuster *Reach for the Stars* for the Amiga (see the review in this issue) and there is every chance that their excellent gaming systems *Warpaint* and *Warplan* will also be converted. Then we'll see some action... *YA*

UNIVERSAL MILITARY SIMULATOR

Title: **Universal Military Simulator**

Supplier: **Rainbird**
Wellington House
Upper St Martin's Lane
London WC2H 9DL
Price: **UMS — £24.95**



Graphics: **10**
Sound: **N/A**
Gameplay: **5**
Value: **5**



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